

THE RAILWAY GAZETTE
 A Journal of Management, Engineering and Operation
 INCORPORATING
Railway Engineer • TRANSPORT • The Railway News
The Railway Times • Herapath's Railway Journal • RAILWAY RECORD.
RAILWAYS ILLUSTRATED
 ESTABLISHED 1835

PUBLISHED EVERY FRIDAY

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"

Telephone No.: WHITEHALL 9233 (7 lines)

Annual subscription payable in advance and postage free

British Isles and Abroad.....£2 5s. 0d.

Single CopiesOne Shilling

Registered at the General Post Office, London, as a Newspaper

VOL. 77 No. 4

FRIDAY, JULY 24, 1942

CONTENTS

	PAGE
Editorials	73
Publications Received	76
The Scrap Heap	77
Overseas Railway Affairs	78
Electric Traction Section	79
A Road-Rail Locomotive in 1872	81
L.M.S.R. 20-ton Goods Brake Van	82
Development of Diesel Passenger Transport, G.W.R.	83
Concrete Sleeper Blocks on the L.N.E.R.	86
Railway News Section	87
Personal	87
Transport Services and the War	89
Stock Market and Table	96

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE in that the size of the page has been reduced from 9 in. x 12 in. to 8½ in. x 11½ in. The type area of the page remains the same, namely, 7 in. x 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Future of Transport

IN the House of Commons on July 14 the question was raised as to whether the Government had under consideration any scheme for the nationalisation of the railways after the war, and an assurance was sought that the House would be consulted before any decision of this kind was reached. Sir Arthur Salter, Joint Parliamentary Secretary to the Ministry of War Transport, in his reply, said that a preliminary survey was being made of post-war transport problems, which included the position of the railways. Before any proposal for future policy was formulated, full opportunity would be afforded to all interested and concerned to express their views, and he added that no such change as the nationalisation of the railways could be made without the approval of Parliament. When his attention was drawn to the statement by Mr. F. J. Burrows, President of the National Union of Railwaymen, at the recent annual conference of that body, to the effect that he was convinced that plans for the unification of the railways were already under way, Sir Arthur Salter pointed out that it had not been made by any representative of the Government and that it did not represent any decision which had been taken by the Government. Sir Arthur Salter's reply does not add to existing knowledge of the position, but in view of the wide publicity which was accorded Mr. Burrows's announcement, and also because his speech was in many quarters construed as a definite statement that unification plans were under way, it will help to allay uneasiness. Although it is obviously desirable that the future of transport should receive active consideration and study, it would be regrettable if a line of policy were decided on during the extraordinary conditions of wartime, or before those most intimately connected with the industry have had an opportunity of expressing their views as to the adjustments necessary to meet whatever shape post-war conditions may have taken.

Destroying Potential Railway Traffic

One of the great changes which rail transport has wrought in the commercial organisation of every civilised country is that it has made possible widespread distribution of commodities, so that the national market has replaced the local market-place. Products of one locality are no longer limited to the customers of a comparatively small area, but are available at a standard price throughout the country, and often throughout a large part of the world. The requirements of the present war, however, give every indication of destroying the national market which is at once the product of the railway era and the basis of railway traffic. Thus, many foodstuffs may now be distributed only within the "sector" in which they are produced; the transit of potatoes is subject to many rules and regulations restricting their length of travel; and even standard articles with a trademark, such as biscuits, will henceforth be sold as a monopoly in one area and not in competition throughout the country. The object of these regulations is obviously to reduce transport at a time when every available resource is necessary for the conveyance of war materials, but it is worthy of consideration as to how far new trends are being created which will result in a permanent diminution of valuable long-haul rail traffic in the post-war period. The development of railways has made possible the national market, but equally many railways have been built to serve the needs of this trend. It may prove impossible to assess financially this undermining of peacetime railway traffic, but it is nevertheless one further example of Government control, under the exigencies of war conditions, reacting unfavourably upon the potentialities of post-war railway revenues.

Mr. F. V. Russell

Mr. F. V. Russell, whose death in his 73rd year is recorded on another page, retired from railway work so long ago as February, 1933, but he will be remembered by many because of his achievements during the time when he was Superintendent of Operation of the Great Eastern Railway, to which office he was appointed in 1915, when that position was created under the reorganisation carried out in 1914 by Sir Henry Thornton. Mr. Russell was mainly responsible for the most intensive steam suburban service ever provided—that on the old Great Eastern Railway between Liverpool Street and Enfield Town and Chingford, which was instituted in July, 1920. Those services provided a 50 to 75 per cent. increase in train service during peak periods. One of Mr. Russell's colleagues in that work, Mr. John Miller, who was Chief Civil Engineer of the Great Eastern Railway at the time, has also died a few weeks ago, so within a short time, therefore, death has removed two men intimately associated with the achievements of an outstanding feat of railway operation. At the time we recorded that the development on

the Great Eastern Railway was the cleverest thing that had been done in railway operation since Sir Cecil Paget had introduced the train control system on a large scale on the Midland Railway and expressed the belief that achievement of the "impossible" by Sir Henry Thornton, Mr. Russell, Mr. Miller, and others, would have equally far-reaching results. One of the main features of interest of the Great Eastern Railway officers' accomplishments was the cumulative effect of a number of small operating and engineering improvements when efficiently co-ordinated and directed towards achieving the desired end. It is not possible briefly to summarise the main points which this successful experiment of improving steam suburban operation presented; they were dealt with at some length in our issue of October 1, 1920. The achievement may be measured by the fact that at rush hours trains of sixteen four-wheel coaches, each with accommodation for between 800 and 900 passengers, were being worked with steam traction over the same line of metals at the rate of 24 to the hour. It is doubtful whether even with electricity the intensity of such mass movement, which amounted roughly to 21,000 seats an hour, or 350 seats a minute, has ever been beaten in this country.

Discharge of Scrap-Iron Cargoes

The British railway companies, as very extensive dock-owners, are concerned with more aspects of transport than merely rail haulage. One of the many wartime problems with which they have to contend is the handling of large cargoes of scrap iron, which is being salvaged in unprecedented quantities. Scrap iron is rather a difficult cargo to discharge, and in South Wales ports damage has often been caused to the carrying vessels in the operation. Shipowners have claimed to receive compensation. Recently the Tatem Steam Navigation Co. Ltd. obtained judgment in the King's Bench Division for £247 against the Great Western Railway Company as stevedore, for damage thus caused to the steamship *Monkleigh* in the discharge of scrap iron in Swansea Docks. The railway company, however, joined the South Wales Siemens Steel Association as a third party to the action and claimed indemnity from it. Here is the interesting point in the case. The railway company, tired of these claims arising out of scrap-iron cargoes, some time ago informed the association that it would undertake the discharge of such cargoes for the association only on condition of an indemnity against damage to vessels. The association, however, does not appear to have accepted this condition specifically. The question arose therefore as to whether the association was bound by it in regard to the discharge of the cargo of the *Monkleigh*. Liability was disclaimed by the association, but Mr. Justice Atkinson has now decided that the railway company was entitled to the indemnity. He said that if the association had dissented, it would not have had its cargoes discharged by the railway company.

Overseas Railway Traffic

The Central Argentine Railway has published the gross receipts for the full 52 weeks of the financial year ended June 30 last, which total 93,019,800 pesos, an increase of 6,492,150 pesos. So far as can be gathered from the figures supplied by three of the other British-owned Argentine railways, the gross receipts in pesos for the complete year may be estimated as:—76,338,000 for the Buenos Ayres & Pacific, an increase of 800,000; 126,839,000 for the Buenos Ayres Great Southern, an increase of 10,282,000; and 45,784,000 for the Buenos Ayres Western, an increase of 4,009,000. In the accompanying table the aggregate receipts are for the first eleven days of July, 1942, and compare with receipts for the first twelve days of 1941. United of Havana gross receipts for the complete financial year to June 30 last amount to £1,709,029, an increase of £445,607.

	No. of week	Weekly traffic	Inc. or decrease	Aggregate traffic	Inc. or decrease
Buenos Ayres & Pacific*	2nd	1,448	-23	2,452	-215
Buenos Ayres Great Southern*	2nd	2,003	+138	3,184	-287
Buenos Ayres Western*	2nd	723	+28	1,214	-136
Central Argentine*	2nd	2,027	+309	2,988	-23
		£	£	£	£
Canadian Pacific	27th	965,400	+158,400	25,172,000	4,397,000

* Traffic returns in thousands of pesos

Aggregate gross earnings of the Canadian Pacific Railway for the first half of 1942 amounted to £24,206,600, an increase of £4,238,000 in comparison with the first six months of 1941.

Towards a Self-Supporting India

Now that India has become the supply centre for the Allies in the Middle and Far East, industries in that country have been developed, and new ones initiated, in a remarkable manner. Lack of shipping, and, more recently, enemy action at, and

control of the, sea have created a further incentive to new forms of production, especially in the steel industry. Continued research on the part of that industry has enabled a wide range of new types of special steels and alloys to be manufactured in the Sub-Continent, in addition to the former peacetime steels for rails, sections, and galvanised sheets, and carbon steels. Among the new developments are special steels for bullet-proof armour plating, shields, and gun turrets. Alloy steels for shear blades for shearing steel plate, helmets, and armour-piercing bullets, and molybdenum-alloy steel for aircraft fabrication, spring steels, and high-carbon steels are now produced in large quantities in India. Of special interest to railways is the manufacture of high-speed steel for machine tools and the development of the acid open-hearth process for turning out wheels, tyres, and axles. Wire of all kinds is also mass-produced. Moreover, India is now almost self-supporting in the manufacture of high explosives. The production of the ingredients of dynamite has been established, and a plant for the making of T.N.T. is nearing completion according to our contemporary, *Indian Engineering*. A new type of cordite requiring no imported ingredients has also been evolved, and plants producing nitric and sulphuric acids have successfully passed the required tests.

American Railways' Costs and the War

The recently-issued report of the Chicago, Burlington & Quincy Railroad covers more than the domestic affairs of the company, for it summarises the general American railway position concerning increases in wages and other costs, and in fares and freight rates. Although the U.S.A. has been at war only since December 7 last, its national economy has been affected by war conditions for very much longer. To meet increases in wages and other costs, the railways filed an application with the Interstate Commerce Commission on December 13 seeking a 10 per cent. increase in passenger fares and freight rates. The Commission approved the increase in passenger fares, other than for army and navy personnel on furlough, to be effective from February 10. So far as freight rates are concerned, the Commission approved a 6 per cent. increase, from March 18, in rates for commodities other than agricultural produce, animals and products, and products of mines, on which commodities (with certain exceptions) an increase of 3 per cent. was granted. The accounts of the C.B. & Q. RR. are summarised at page 95.

Railway-Operated Road Traffic in Sweden

Road services operated by the Swedish State Railways and by the Swedish privately-owned railways improved their position in 1941, as compared with 1940, since combined receipts totalled Kronor 21,050,000, or were more than 25 per cent. above the figure for 1940 (Kronor 16,830,000). This improvement is said to be a result of the better use of the services, and of the increase in rates and fares. Expenditure amounted to Kronor 17,770,000 in 1941. After allocation to renewal fund there was, however, a deficit of Kronor 70,000 for 1941. This is a considerable improvement over 1940, since the deficit for that year amounted to Kronor 630,000. The capital invested in railway-operated road services aggregated Kronor 28,050,000 by the end of 1941. The combined route length of the services was 21,151 km. (13,143 miles) by the end of 1941, or 1,227 km. (762 miles) more than a year previously. The railway-operated road-motor fleet comprised 1,359 buses and other types of passenger vehicles, with a total accommodation for 46,213 passengers, and 324 lorries, with a capacity of 986 metric tons; in addition, there were 187 trailers.

A Revolution in American Shunting Power

Statistics just published show that in the United States the diesel-electric shunting locomotive has practically extinguished the demand for steam-propelled shunters. Low operating costs, and, above all, practically 100 per cent. availability, are the chief attractions of diesel propulsion, and help to offset the fact that the diesel units may cost up to three times the price of steam locomotives of corresponding power. It was in 1924 that the first diesel shunter was introduced in the U.S.A.; by 1939, 601 diesel shunters had been brought into use, of a total of 397,380 b.h.p. In 1940 a further 340 shunters, aggregating 240,640 b.h.p., were built, and in 1941 the number of new units put into service rose to 598, with a total b.h.p. of 468,000. By comparison, in the five years between 1925 and 1929 inclusive, 729 steam shunting locomotives were built for the United States railways, increasing the number of engines of this type to 10,416 at the end of the latter year. In the next five years, however, the total ordered was only 118; from 1935 to 1939 the orders dropped to 93, and by reason of withdrawals the total number of steam shunters at the end of 1934 and 1939 fell to 8,712 and 7,509 respectively. But the most

astonishing comparison is in the years 1940-41, in which, as already mentioned, 938 diesel-electric shunters were turned into service, compared with 6 only propelled by steam. Thus, while 1,539 new diesel shunting locomotives have been added to stock in 17 years, the total of steam locomotives used for the same purpose has been reduced by 3,587; and the process still continues.

♦ ♦ ♦ ♦

Lengthy Locomotive Runs

In railway operation during the last two decades there has been a marked tendency towards increase in the length of continuous locomotive runs. Up to the last war, for example, it was the practice with Anglo-Scottish trains to change engines at Crewe and Carlisle on the West Coast route, and at Grantham, York, and Newcastle on the East Coast, whereas by the beginning of the present war through workings of Pacific locomotives over the 401½ miles between Euston and Glasgow, and the 392½ miles between King's Cross and Edinburgh were in daily operation. In the latter case four independent engine workings on a single train came down in but little over ten years to a single working, with one change of crew intermediately. The size and power of the modern locomotive, its mastery over its work, and in particular enlarged firegrate areas and improved front-end design, have all helped to increase the distance which the locomotives are capable of running without needing time off for attention to locomotive requirements. In America, with the further advantage of mechanical firing, grate-shaking appliances, and, of course, far larger and more powerful locomotives, the longest continuous runs yet instituted here are more than doubled in length; 800-mile steam locomotive turns are common, and the Northern Pacific RR. has regular 4-8-4 locomotive turns between St. Paul and Livingston, Montana, a distance of 1,008 miles. Experimental runs have been made successfully by the Santa Fe with unchanged 4-8-4 steam locomotives over the entire 2,227 miles between Chicago and Los Angeles.

♦ ♦ ♦ ♦

No More U.S.A. Streamliners in Wartime

The new Panama Limited trains of the Illinois Central Railroad, which, as announced in THE RAILWAY GAZETTE of July 3, went into service on May 3 last, are to be the last sets of streamline stock to be built in the United States while the war lasts, according to public announcements which have been made. It thus seems clear that for the time being the peak has been reached in the comfort and speed of American train services; indeed, other recent announcements foreshadow a probable recession from the present position, in both equipment and speed, because of the great demands now being made on rail transport as a result of war conditions. By the introduction of these new 9-car streamline trains, with their 4,000-b.h.p. diesel-electric locomotives, it has been found possible to reduce the journey time over the 921·2 miles between Chicago and New Orleans by 2 hr.—from 20 hr. to 18 hr.—so that the overall average speed has been raised to 51·3 m.p.h. for the entire distance, and this in wartime. Communication between St. Louis and New Orleans also benefits, as the southbound connection has been expedited by 90 min. Departure from Chicago is at 3.15 p.m., and New Orleans is reached at 9.15 a.m.; in the reverse direction the streamliner starts 75 min. earlier. An interesting feature of the new trains is that, in the interests of economy in space, every car except the dining car includes some sleeping accommodation. The Panama Limited conveys Pullman passengers only.

♦ ♦ ♦ ♦

Choosing Your Carriage

Although ours is not a people easily awed by uniforms, we notice that a good display of crowns and pips in a compartment is a check to the exuberance of some travellers. Often the door of a first class carriage will be flung open to the accompaniment of triumphant cries that "It's all third now" (in spite of the notices carefully designed and displayed by the railway companies), but on finding a major or colonel enshrined within the invaders will go quietly away. Civilian first class passengers may therefore be recommended to choose compartments occupied by these useful talismans, but we warn them that similarly beneficial effects cannot be guaranteed in the company of squadron leaders and wing-commanders, whose exploits and even voices have become so familiar over the radio in millions of homes that the public is rarely in awe of them. The same, of course, applies to naval commanders, although we would not say that the presence of an itinerant admiral may not sometimes be turned to good account. As to the lower commissioned ranks of all services, we fear that they have multiplied to an extent at which no reliance whatever is to be placed on them for this purpose.

Restaurant Cars in 1942 and 1917

THE drastic curtailment of restaurant and buffet car services which took place in Great Britain after Whitsuntide this year has reduced the number of restaurant car services to 62 daily, 28 on the L.M.S.R., 16 on the G.W.R., 12 on the L.N.E.R., and 6 on the S.R. For working these services the L.M.S.R. requires 17 restaurant car sets, the L.N.E.R. 6, the Southern 4, and the G.W.R. 13 single cars, or 40 in all. Comparison has been made in public announcements between this last figure and something exceeding 400 before the reduction, but it is, of course, an incorrect comparison, as the 400 represented individual trains, some of which, like the Pullman and buffet car services on the S.R., were operated by a limited number of cars, a single car (as, for example, between London and Brighton) providing for four or even six trains during the day. The present 62 restaurant car services actually compares with the maximum wartime services of 234 daily restaurant car trains (90 on the L.M.S.R., 57 on the L.N.E.R., 47 on the S.R., and 40 on the G.W.R.) that were running in this country until early in 1941. It will be remembered that in the first emergency train services of the present war, all the restaurant, buffet, and Pullman car services were withdrawn. Restoration came before the end of 1939, and early in 1940 a total of 365 trains was again running daily with these facilities. Further additions were then made, in response to public clamour, and by the beginning of 1941 the number of daily trains in Great Britain so provided had risen to 430. The L.M.S.R. had 90 restaurant car trains in service; the L.N.E.R. 57, with 90 buffet car trains; the G.W.R. 40 restaurant and 12 buffet trains; and the S.R. 47 trains with restaurant cars, 24 with refreshment service, and 70 with Pullman cars. The present clean sweep of buffet and Pullman cars alone has cut all but 200 from the total of 430, but, as previously mentioned, many of the Pullman and buffet services ran over very short distances, and single units provided for a number of different trains every day.

As to the present limited restaurant car arrangements, it is curious to note how complete an inversion there is in this war of the restaurant car facilities that were provided up to the close of the 1914-19 war. In the latter, the general withdrawal took place at the beginning of 1917, after nearly 2½ years of war; in the present war it comes after the country has been at war for over 2½ years. In 1917-1918 the Midland Railway continued until the end of the war to maintain 20 daily restaurant car services, 10 between St. Pancras and Manchester, 4 between St. Pancras and Bradford, 2 between Nottingham and Bradford, 2 between Bristol and Derby, and 2 between St. Pancras and Glasgow. In this war one Midland car makes only a daily journey from Derby to London and back. In the last war the Great Central Railway had 8 restaurant car services in operation, 6 between Marylebone and Manchester and 2 between Marylebone and Bradford; there are now none working on the G.C. Section of the L.N.E.R. The London, Brighton & South Coast Railway had 20 Pullman car trains at work in 1918; on the Central Division of the S.R. there are now none. Whereas the London & North Western, Great Western, Caledonian, and North British Railways, on the other hand, cut out all restaurant cars in the last war, in the present war the number of services in operation over the corresponding sections of the main-line groups is 18, 16, 4, and 6. The Highland Railway up to 1918 had never seen a regular restaurant car train, but now has 4 such left daily. The London & South Western Railway ran cars to and from Bournemouth throughout the last war, but in this war restaurant car service over the Western Division of the Southern is confined to the Exeter line. On the Great Eastern Railway there were 4 daily in 1918, as compared with 2 now. In Great Britain, therefore, the close of the last war saw 46 restaurant car services still operating (with 2 restaurant and 6 buffet car services on the Great Northern Railway of Ireland), as compared with 62 restaurant car trains now (with 4 restaurant and 10 buffet car services on the Great Northern and 8 refreshment car trains on the Northern Counties Committee lines in Northern Ireland).

There are other singular aspects of the present restaurant car services. The passenger on the down Flying Scotsman who has gone without any sustenance from King's Cross to Edinburgh can console himself with dinner if he is continuing to Dundee or Aberdeen, and similarly can fortify himself with breakfast on the way up from Aberdeen to Edinburgh before entering on the foodless rigours of the journey from there to London. The L.M.S.R. express reaching Euston at 9.35 p.m. is unique in wartime in incorporating two sets of cars, from both Liverpool and Manchester; on Saturdays the 5.30 p.m. from Euston is similarly equipped, but on other days the Manchester portion usually runs independently. On the Great Eastern Section of the L.N.E.R. the Cambridge and Ipswich main lines each see one restaurant car train a day, up in the morning from Norwich via Ipswich, and back in the evening via Cambridge. Restaurant cars are still

operating as far westward as Penzance and as far north as Helmsdale and Fort William, but (apart from the Euston—Blackpool and Euston—Heysham cars) the section of country bounded by lines from Lancaster to Leeds in the south and Glasgow to Edinburgh in the north is entirely without restaurant car facilities, save for the troop trains which still carry buffet cars manned by outside organisations.

Paper Salvage and the Law

THE legality of sending for paper salvage purposes old transfer deeds and other official documents and records of companies was discussed in the issues of THE RAILWAY GAZETTE for November 21 and 28. It was there pointed out that railway and other statutory companies were, in this respect, bound generally by Section 15 of the Railways Clauses Consolidation Act, 1845, which requires transfer deeds when duly executed to be "delivered to the secretary, and be kept by him," but specifies no time limit. This raises the question whether a liability is thereby imposed on a company to keep these documents for ever. On November 11 last the Board of Trade made a new Defence Regulation (S.R. & O. 1941, No. 1778) the effect of which is to protect a company from any liability in respect of the destruction of transfer deeds of its securities at any time not earlier than three years after the transfer had effect, so long as the officers of the company act in good faith and without notice of any claim to which the transfers may be relevant. The regulation applies to documents transferring the company's shares, stock, bonds, debentures, and debenture stock. Whether this regulation applies to statutory companies is not quite clear, but the four main-line railway companies decided some time ago to shorten very materially the period for the retention of many of their records, and this is resulting in a very substantial contribution to the national salvage effort, as is evident from the figures we have published.

The Waste Paper Recovery Association Limited has recently issued under the heading of "Waste Paper Goes to War" a communication stating that the law does not state unequivocally that books and documents should be kept for any definite period of time. This evidently refers to limited liability companies which are regulated by the Companies Act, 1929. The books which these companies should keep are set out in some detail, but there is no direct stipulation as to how long they are to be kept. There is a reference to time in the case of companies in liquidation. In such cases it is a punishable offence not to have kept proper books of account throughout the period of two years immediately preceding the liquidation. By inference, the best way to prove that proper books of accounts have been kept is to produce them for these two years. Again, a liquidator, where the company is finally wound up, cannot be called upon to produce the books after a lapse of five years. It is possible to secure their disposal within that period, however, by obtaining the sanction of the company, or the creditors in a voluntary winding up, or of the Board of Trade in a compulsory winding up. They should in any case be kept for at least two years, since the proceedings may be re-opened within that period. These time limits do not appear to be affected by the new Board of Trade Defence Regulation.

The Pennsylvania Report

THE report of the Pennsylvania Railroad for 1941 provides a remarkable commentary on the changes that have taken place in American railway operating conditions in the brief space of 12 years. Heavily adverse factors have been the reductions in fares and rates, and the unprecedented increases in wages and taxation; as a set-off to the losses so entailed there have been substantial savings brought about by greater efficiency in motive power, improved design of rolling stock and track, and other economies in all directions. Comparison is chiefly

with 1929, the last of the "boom" years, and 1932, at the depth of the depression. In 1941 both passenger and freight traffic was greater than in 1929. Passenger-miles, which totalled 4,235 million in 1929 and dropped to 2,191 million in 1932, had recovered to 4,330 million in 1941; freight ton-miles, which reached 49,174 million in 1929 but slumped to 29,100 million in 1932, rose to 52,096 million in 1941. Average rates were 35.2 per cent. lower on passenger tickets and 7.8 per cent. lower on freight in 1941 than in 1932, with the result that, despite this increase, the operating revenues were 10 per cent. less in 1941 than in 1929. Taxes, which totalled \$40,518,596 in 1929, had increased to no less than \$66,159,548 in 1941, and thus absorbed 10.8 cents out of every dollar of operating revenue, equivalent to 10.1 per cent. per share. Total operating revenue, which between 1929 and 1932 was more than halved by dropping from \$682,702,931 to \$331,393,458, recovered to \$614,041,164 in 1941; total operating expenses in these three years were \$493,150,592, \$242,011,603, and \$442,677,275 respectively; but after addition of non-operating income and taxation and other deductions, the net income of the company, which in 1929 was \$101,378,518, but three years later had dropped to less than one-seventh of that figure—\$13,573,536—was in 1941 little more than half the 1929 figure, at \$52,383,958. This was sufficient to enable the company to pay a dividend of 4 per cent., and to carry over \$22,079,080.

The principal operating and financial figures are as follow:—

	1941	1940	1929
Freight train-miles	45,246,469	36,548,978	48,555,937
Revenue freight ton-miles (000) ...	52,096,022	39,755,555	49,174,162
Average haul, miles	236.7	228.1	210.6
Passenger train-miles	43,495,984	41,612,656	60,950,697
Freight revenue	477,008,587	363,510,306	492,896,402
Passenger revenue	89,022,892	71,623,220	129,583,665
Total operating revenue	614,041,164	477,593,408	682,702,931
Transportation expenses	214,127,540	168,107,037	235,190,937
Total operating expenses	442,677,275	338,454,678	493,150,592
Net railway operating income	97,102,488	86,499,486	133,139,625
Net income	52,383,958	46,238,250	101,378,518

The most remarkable figures in the report are those relating to operation. In 1941 the number of locomotives in use was 3,539, as compared with 4,297 in 1929; passenger cars were 4,917 against 5,188, and freight wagons 175,889 against 184,704; yet 18 per cent. fewer locomotives and 5 per cent. fewer cars handled 5.9 per cent. more ton-miles and 2.2 per cent. more passenger-miles. Although the passenger traffic was thus greater, the passenger train mileage dropped from 60,950,697 to 43,486,984—more than 28 per cent.—whereas the average number of passengers a train rose by 45 per cent. from 69 to 100; also the average distance travelled by each passenger increased from 37.2 to 58.1 miles between 1929 and 1941. Freight service improvements were less spectacular, but were also on a considerable scale; average tonnage conveyed by each train rose from 1,005 to 1,152, and the average length of haul from 210.6 to 236.7 miles, though the average tonnage carried by each wagon fell slightly from 30.9 to 29.3 tons. Very great additions to rolling stock were made during 1941; they included 4,954 freight wagons, 200 cabooses, and 668 containers. Also 41 high-capacity locomotive tenders; only 3 new locomotives and 4 new passenger coaches were added to stock, but 110 coaches were remodelled; in the 12 years ended December 31, 1941, the Pennsylvania put 35,000 new freight wagons and 336 new locomotives into service, and expended nearly \$670,000,000 on improvements to equipment, track, structures, and other details of public service. On order at the close of 1941 for the Pennsylvania there were no fewer than 6,922 freight wagons, 250 cabooses, 23 locomotives, 16 high-capacity tenders, 14 passenger coaches, and other equipment. The Pennsylvania Railroad, including its fifty or more subsidiary lines, operates 10,841 route miles of line, of which 674 miles of its own and 185 miles of associated lines are electrified.

Publications Received

Instruments for Accurate Gauging.

—New catalogue sheets recently issued by A. C. Wickman Limited, machine tool specialists of Coventry, illustrate and describe the "Eeset" adjustable caliper gauges, and the Venwick gauges. The first of these is available in six sizes ranging from 0.1 in. and 5.6 in. by progressive stages. The main feature of the gauge is that a correct setting can be obtained in approximately one minute, this being due to the backing screw being drilled and having a removable rod passing through it which

pushes directly on to the back face of the anvil. The ability to set the gauge with a minimum of trouble and expenditure of time is a great asset, especially in present circumstances when everything that can be done to economise in cost and labour, thereby increasing output, is of such great value. In the Venwick gauges, the mechanism is enclosed in a dustproof steel tube, and the gauge scale has 60 divisions, which are graduated in 0.0001 in. The scale is clear and easily read; the division lines are in black on a silver-grey background, with a spacing of 0.04 in. between each line, and for ease of observation a pointer is provided with a red dot. This instrument will check

the external diameter of cylindrical work as well as test for roundness and parallelism. The gauge has an inclination of 45° and is located exactly opposite a roller rest. A second roller rest parallel with the first can be moved in a horizontal plane and roughly set on a scale. A universal stand for the gauge is illustrated and described in the catalogue; this stand is used for checking the true running of cylindrical pieces and in connection with the alignment of them. Both instruments are made with great accuracy and the best workmanship is exhibited throughout. The catalogues illustrate both forms of gauges and describe them in detail.

The Scrap Heap

NO RETURN FOR KINDNESS

A man who was unfamiliar with the fares on a particular line recently asked for a single ticket for Liverpool, and was highly indignant when the booking clerk offered him a return ticket. He handed it back with the remark that he had asked for a single ticket and that was what he wanted, and he refused to pay any attention to the clerk's explanations. "All right," said the clerk at last, "if you insist!" And he handed the obstinate traveller a single ticket, which cost him 1s. 2d. The ticket he refused was a cheap day-return at 10½d.

—From the "Liverpool Daily Post."

THE CAT'S WHISKERS

An amusing device has been invented recently in America which has been given the name "the cat's whiskers." The arrangement, which is designed for road motor vehicles, consists of slender rods, which, when the driver presses a button, shoot out at the corners of a vehicle, and if one or more of them touches anything, this fact is registered on the dash, so that a driver with an awkward load or particularly large vehicle can tell at once if it be likely to jam in, say, a narrow entrance.

One lady, who arrived at Tongku after the last train for the day had left, wanted me to provide her with a "special" free. I explained that this could not be done, but if she was really very anxious to get on I would put a deck-chair in the guard's van of a goods train and allow her as a special favour to travel in that. She examined the van and seemed to turn up her nose at it. So to encourage her I said, "My wife has often travelled like that," to which her laconic reply was, "Thank God, I'm not your wife."—*Stalky's Reminiscences.*

A MOUNTAIN RAILWAY

The most recently-completed high mountain railway in Switzerland is that up the Rothhorn 7,240 ft. high, from the lake and town of Brienz, not far from Interlaken. The material through which the eleven tunnels of this line were excavated consisted of debris which had slipped down the mountain, and which seemed disposed to go on sliding when disturbed. Subterranean springs also made the work difficult, and in places new beds had to be made for mountain streams.—*From the "Scientific American" of June, 1892.*

THE LONELY POLICEMAN

We remember that in peacetime a policeman was usually to be seen pacing reflectively in the quiet concourse of Marylebone Station, L.N.E.R. His helmet swam majestically above the varied headgear of the teeming crowds who swarmed into the station from Gerrard's Cross, Wendover and other centres still more remote and populous, and when for a brief moment the tumult died, it could be observed inclining gravely in philosophic discourse with the ticket collectors. On a recent visit to Marylebone, we observed not one, but two policemen, who were, indeed, the only living persons immediately apparent on entering the station. "Why," we asked ourselves, "this awesome display of Force? Surely there is no more likelihood of civil commotion here than there would be in a monastery garden." At this moment a porter appeared and reverently

wound on a few more inches of the sacred scroll on which train departures are inscribed. The lengthy intervals between the times of trains answered our question. Clearly our old friend has been granted a companion to offset the effects of solitude.

B. K. C.

THE "FLYING SCOTSMAN" AGED 80

Eighty years ago, in June, 1862, the first Flying Scotsman pulled out from No. 10, platform Kings Cross at 10 o'clock and with but one or two exceptions, this aristocrat among trains has left this same platform at the same time every day since then. The original train of about 6 small coaches has grown through the years to the magnificent pre-war 14/16 coach hotel on wheels. During the war the luxury train has been converted into a utility train, but it is still the Flying Scotsman and jealously clings to its greatness by being the only named express on the L.N.E.R. at present. On occasions, bombs tearing up the track have caused the 10 o'clock, for a very short period, to depart from Wood Green, and passengers and their luggage have had the novel experience of being motored out from London to join their train. However, the damage was soon sufficiently repaired to allow the Scotsman to leave from its accustomed platform No. 10.

PRODUCTION SLOGANS

Slogans are said to be playing a big part in the American production drive. More than half a million men and women have engaged in "slogan contests" in three hundred plants, and contests are under way or being planned in most of the remaining nine hundred plants in which voluntary labour management committees have been set up. Some plants have weekly or monthly contests. In one 1,200 entries were submitted; in another 3,110 came from 2,500 employees. The War Production Board comments that examination of the winning entries shows that "the workmen of America like slogans with a swing and rhythm and that they like them vigorous and lusty." The examples given are not quite as bright as one might have hoped for from the rich American idiom. "If it's nip and tuck, make it the nip that gets the tuck" is a little baffling; "Speed the wheels to beat the heels" and "Jappy, we'll knock you slap happy" are plainer. With "The Nazis cheer each idle gear," "Speed 'em for freedom," "Fight 'em in the factory," and "T.N.T.—To-day, not to-morrow" we come nearer to the merely prosaic. There is no doubting the will behind the slogan-writing, but evidently it is a literary medium that has severe limitations.—*From "The Manchester Guardian."*

THREE COLLISIONS A DAY

Reading some reminiscences in our American contemporary the *Railroad Magazine*, we feel no surprise that the old 338 mile Cincinnati Southern line, from Cincinnati to Chattanooga, built by the former city and now part of the "Queen and Crescent" route as a Southern subsidiary, used to be credited with "three collisions a day," for the gross carelessness frequently shown in observing the single line dispatching rules is

appalling. Although "three collisions a day" was a popular exaggeration, we can definitely state that on one month of the year 1889 there were 31 collisions on this railway. Eventually, however, it became one of the best signalled in the United States.

PRESENCE OF MIND

It is hardly possible to drive a locomotive direct into a service station, like an automobile, if any emergency repairs are needed *en route*, but a near approach to such action was reported recently on the Pennsylvania Railroad of the U.S.A., when some quick thinking and consequent action on the part of a locomotive crew avoided considerable delay on a busy main line. Passenger train No. 113 was proceeding westwards between Pittsburgh and Chicago when the brakes leaked on and brought the train to a stand 3 miles west of Beaver Falls, Pa. It was found that the pipe feeding steam to the air compressor on the locomotive had become disconnected, so that the brake was inoperative, and apart from a replacement of the pipe the train could not be moved. A quick examination showed that if a new thread could be cut on the pipe, it could be replaced with ease. Across the line at this point is the works of Babcock & Wilcox Company, with a sign proclaiming that boilers are manufactured on the premises. Seeing this, and taking a long chance, the crew disconnected the pipe, and hurried with it across to the works, where they explained their mission. They were soon helped to select the right stock and die, with which, aided by a works employee, they cut a new thread on the pipe. Returning triumphantly to their engine, they replaced the pipe in position, and screwed it up, with the result that the air compressor was soon in action again, and with brakes released the train was once again on its way. Due to the presence of mind with which the crew had tackled this emergency, the total time during which the train was detained was no more than 35 min.



"Pass along inside the car, please."

[Reproduced by permission of the proprietors of "Punch"]

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Economic Bureau for Railways

An economic bureau has been established recently at railway headquarters, Johannesburg. The bureau will investigate economic soundness and technical practicability of schemes involving expenditure from capital and betterment funds, as well as other major problems requiring research; it is intended particularly that schemes for post-war reconstruction should be given careful consideration, so that, if held to be practicable, they may be able to be put in hand as soon as possible after the war. Mr. E. H. Wilson, Assistant Chief Civil Engineer, South African Railways & Harbours, has been appointed chairman.

Staff Representation

The inaugural meeting of the consultative committee of the six staff groups, the formation of which was reported in our November 21, 1941, issue, was held recently in Johannesburg, and afterwards the committee met the Commissioners and the General Manager at Pretoria. Various matters affecting the staff were submitted by the committee for the consideration of the administration. These included the question of additional representation on boards and committees, the provision of mobile clinics to meet the medical and dental needs of staff employed at wayside places, cost-of-living allowances, grants to railway missions, membership of staff associations, holiday bonuses, and a departmental rent-rebate scheme. The administration was able to a large extent to meet the representations made by the consultative committee, and, in other cases in which decisions could not be given at once, it undertook to have further inquiries made.

The Minister announced that the administration had decided to reduce, from ten to six years, the qualifying period for admission to the permanent staff. This would mean that approximately 5,500 men, now on the temporary staff, would benefit immediately in service conditions. He emphasised the fact that any tendency towards inflation would have to be guarded against carefully, but that the position of the lower-paid workers, both European and non-European, deserved special consideration should any scheme of improvement be decided upon. The staff representatives wholeheartedly agreed that the claims of the lower-paid workers should receive first consideration.

UNITED STATES

Coded Continuous Cab Signalling

The latest available information concerning coded continuous cab signalling on United States railways shows that it is now operative over 1,678 route-miles, and 4,252 track-miles, of line. Including electric and diesel-electric, as well as steam locomotives, 3,231 engines are fitted with the necessary apparatus, and the number is increasing constantly. The first installation on record in the U.S.A. was between Lewistown Junction, Pa., and Sunbury, on the Pennsylvania Railroad.

Decreasing Freight-Loss Claims

In proportion to the tonnage of freight handled, the payments made by the United States and Canada against claims for loss of, or damage to, goods in transit are declining steadily. The total sum so paid in 1941 amounted to \$23,438,536, and,

although this is an increase of 11.3 per cent. over the 1940 total, it has to be set against an increase of 24.2 per cent. in car loadings in 1941, as compared with 1940. Claim payments in the U.S.A. totalled 0.5 per cent. of the revenue, the lowest figure on record, whereas they were 0.57 per cent. in 1940; in Canada the considerably smaller percentage of 0.27 was unchanged over both years. Similarly, the aggregate settlement for losses of freight by theft of \$376,490 was the smallest on record, and, regardless of the increase in traffic handled, was 11 per cent. less than the \$407,742 of 1940. Better packing of freight and increased police vigilance together have resulted in a progressive reduction in theft-loss during the past twenty years.

Summer Train Services

Summer timetables came into operation on May 3, with few changes of note. Between New York and Miami, a 25-hr. service is maintained in both directions, with slight alterations in train times. The Silver Meteor of the Seaboard Air Line now leaves New York at 2.5 p.m., and reaches Miami at 3.5 p.m. the following day; the competing Tamiami Champion of the Atlantic Coast Line has independent East Coast and West Coast sections, the former leaving New York at 3.55 p.m., and reaching Miami the next day at 4.55 p.m.; the latter leaves New York at 12.50 p.m., and reaches St. Petersburg at 4 p.m. All these trains now combine luxury-coach accommodation with Pullman sleepers, lounges and diners. The all-coach streamliners between Chicago and Miami, in the working of which ten railways combine to give a 29½ hr. service by three different routes, turn and turn about, are continued for the summer. To encourage rail travel along the Florida coast, in view of the war restrictions on road transport, the Florida East Coast Railway has put in service the appropriately-named Tire-Saver—a diesel-powered streamliner with individual-seat coaches, tavern lounge, and dining car. It leaves Jacksonville at 3 p.m., with calls at all principal stations, and reaches Miami at 9.30 p.m.; the return journey is at 2.15 p.m., reaching Jacksonville at 8.45 p.m., and 6½ hr. thus is required for the 366 miles, stops included. In the north-eastern states the patronage of the General (of the Pennsylvania RR.) between New York and Chicago is so heavy that daily division is now necessary in the westbound, as in the eastbound, direction. The relief train in both directions is known as the Admiral; westbound, it leaves New York at 4.5 p.m., and reaches Chicago at 8.20 a.m.—a run of 17½ hr. (allowing for the change of time *en route*), as compared with the General's 17-hr. schedule. The latter is now an all-Pullman train, whereas the Admiral carries coach passengers also. Journey time of the new all-Pullman Panama Limited, streamliner of the Illinois Central RR., the introduction of which was mentioned in the July 3 issue of THE RAILWAY GAZETTE, is now 18 hours for the 921.2 miles (average 51.3 m.p.h.); Departure from Chicago for New Orleans is at 3.15 p.m., and the return is at 2 p.m. daily.

A Tube Derailment

A serious derailment on April 26 entirely suspended the electric service through the tubes of the Hudson & Manhattan Railroad between the Hudson terminal in New York and the New Jersey rail terminals,

for more than three days. At 10.48 p.m. a train of six steel rapid-transit cars was derailed, due to excessive speed on a curve, when entering Exchange Place Station in Jersey City; the third, fourth, and fifth cars were thrown against the tunnel wall and then on to the platform, and five passengers were killed and 200 were injured. Removal of the wreckage and replacement of the damaged track and structures was a task of exceptional difficulty, due to the confined space, and this accounts for the delay in restoring communication; extra ferries had to be put into service across the Hudson River to handle the diverted traffic. It is alleged that the driver of the derailed train had been drinking, and he is being held on a charge of manslaughter.

ARGENTINA

B.A. Transport Corporation

The report on last year's working submitted at the annual meeting of the Buenos Aires Transport Corporation on April 30, showed a loss during 1941 of 12,354,000 pesos, due mainly to the same factors which adversely affected the financial situation in 1940. The continued operation outside the Corporation of nearly all the *colectivo* lines has prevented the proper co-ordination of the City's transport services, and made it impossible to effect the economies in working and the tariff modifications which are essential if the corporation is to be put on a sound financial footing. In addition, there are the difficulties created by the scarcity of, and high cost of, fuel and other materials, due to the war, which has also interfered with the importation of transport units. Of the loss on working, 3,093,000 pesos corresponds to the actual working deficit, and the balance of 9,261,000 pesos represents the sum allocated to renewals. By means of new agreements, into which the corporation has entered with third parties, relating to the supply of electric power, and by contracts for other services, it is anticipated that a saving of 3,750,000 pesos a year will be effected. The report stated that the loan of 40,000,000 pesos, recently concluded with a local financial syndicate, with the approval of the Government, would enable the corporation to carry out the re-organisation and co-ordination of the transport services and to effect important economies. (The arrangement of this loan was reported in our May 8 issue).

New Equipment

The report stated also that new equipment, contracted for during 1941, included 298 micro-buses of various types; 225 chassis; 200 electric motors for tramcars; and 200 diesel motors for buses. It did not specify what proportion of this equipment had been delivered, but stated that negotiations were in progress with American manufacturers to obtain the earliest possible delivery of what is outstanding.

MEXICO

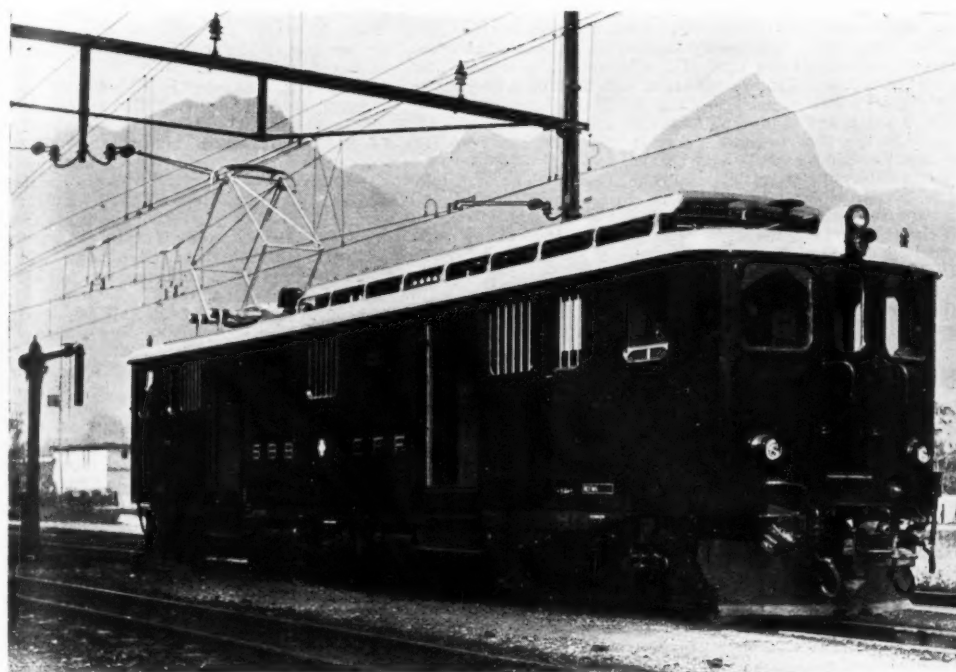
The South-Eastern Railway

The Government of Mexico has decided to continue construction work on the Ferrocarril Sud-Este (South-Eastern Railway) from Coatzacoalcas through the States of Tabasco, Chiapas, and Campeche to the city of Campeche where it connects with the Yucatan Railway system.

Abandonment of the project was announced late in 1941, but that decision has now been reversed. It is reported that the graded sections will be used as a highway until rails are available.

Motor Luggage Vans for Brünig Line

The new motor luggage vans for the metre-gauge Brünig line of the Swiss Federal Railways have separate adhesion and rack-drive trucks and exceptionally complete brake equipment



ferential air-brake, with Bozic type control valves, a direct-acting air brake on the rack mechanism, another direct acting air brake (as used on railcars) and dynamic electric braking. The ordinary service working on the adhesion sections is effected with the automatic brake which acts on all wheels and on the train and is fully variable, in application or release. On the rack sections this brake is held in reserve for emergencies. The direct-acting brake, acting on the drums on the rack mechanism, is used to hold a train on the rack sections as the dynamic brake ceases to be effective below about 10 km.p.h. (6.2 m.p.h.) and in an emergency. The second direct-acting brake serves as an independent control on the ordinary bogie wheels and is used only when entering on the rack rail, to control the rear of the train from the assisting motorcoach. To prevent confusion the driver's handle of this brake is

IN the general description of the electrification of the Brünig section of the Swiss Federal Railways appearing in our combined issue of March 27 & April 3, 1942, Electric Traction Section, page 434, brief reference was made to the motor luggage coaches or vans which are being used as locomotives. We are now able to illustrate these vehicles and give further details of their construction, which have appeared in the *Bulletin of the Swiss Federal Railways*.

These motor-vans are classified as *Flm 4/6*, and numbered 901 to 916. Their total specified weight was placed at 58 tonnes but actually came out at 54, and 3 tonnes of luggage and parcels can be carried. The maximum speed on the adhesion sections is 75 km.p.h. (46.6 m.p.h.) and ascending the rack sections, 12 per cent. (1 in 8) gradient, 25 km.p.h. (15.5 m.p.h.). (The first vehicle was able to exceed this speed.) The descending rack speed is being limited to 19 km.p.h. (11.8 m.p.h.) for the present, but will later be made the same as the ascending rate. A load of 240 tonnes can be hauled on the level and 60 tonnes on the rack, at these speeds. The principal novelty of the construction lies in the use of the three four wheel trucks, the two end ones—bogies—serving for adhesion working and the centre one only engaging with the rack rail (its wheels are merely carrying wheels) and not working except on the rack sections. Each truck carries two motors permanently connected in series, making six in all. This separation of the rack-drive truck from the adhesion bogies has been

adopted to simplify maintenance and lessen wear and tear; the rack sections form only a small proportion of the entire route. When not on these the centre truck runs free.

The adhesion bogies are substantially similar to those used in the latest high-speed motor coaches running on the standard-gauge lines. The reduction gear ratio is 5.31 and the wheel dia. 900 mm. (35.4 in.); the motor revolutions are 2,350 a min. at 75 km.p.h., the maximum speed. The voltage at the motor is then 465 and the total effort at tread of wheel for the two bogies is 10,000 kg. (22,000 lb.). The rack drive truck carries a motor at each end, revolving at 2,300 r.p.m. at full speed, with a double reduction, ratio 11.42, to a rack pinion, with pitch circle of 860 mm. (33.8 in.). The total effort on the rack rail for the two motors is then 10,700 kg. (23,540 lb.). The carrying wheels are 710 mm. (27.9 in.) dia. The play in the axle bearings is limited to 10 mm. (0.39 in.) and the springing is somewhat harder than usual, to ensure reliable engagement with the rack rail. Entry to a rack section is facilitated by special springing of the reduction and rack pinion shafts, both of which carry band brakedrums. The carrying wheels have ordinary brakeshoes. The coach body is of welded steel, and the centre compartment contains the main electrical apparatus, with luggage compartments on each side, connected by side gangways with the driver's cabs.

Very complete braking equipment is provided, namely, the ordinary hand brake, the automatic two-chamber dif-

ferential air-brake, with Bozic type control valves, a direct-acting air brake on the rack mechanism, another direct acting air brake (as used on railcars) and dynamic electric braking. The ordinary service working on the adhesion sections is effected with the automatic brake which acts on all wheels and on the train and is fully variable, in application or release. On the rack sections this brake is held in reserve for emergencies. The direct-acting brake, acting on the drums on the rack mechanism, is used to hold a train on the rack sections as the dynamic brake ceases to be effective below about 10 km.p.h. (6.2 m.p.h.) and in an emergency. The second direct-acting brake serves as an independent control on the ordinary bogie wheels and is used only when entering on the rack rail, to control the rear of the train from the assisting motorcoach. To prevent confusion the driver's handle of this brake is

removable and placed in position only on the rack sections. Both direct air-brakes are of Westinghouse type. The dynamic brake is applied, through separate sets of resistances carried on the roof, to each group of motors and is employed as a service brake down to 10 km.p.h. when descending the rack. The hand brake acts on the ordinary bogie wheels and the countershafts of the rack-drive mechanism. It is sufficient by itself to hold a train stationary on the rack sections.

The mechanical portion of all 16 vehicles—of which 4 are in service—is being built by the Swiss Locomotive & Machine Works, Winterthur; the electrical work is divided among the Brown Boveri, Oerlikon and Sécheron works, in accordance with the usual practice.

DANZIG TRAMS.—The Danziger Elektrische Strassenbahn A.G. returned a net profit of RM. 621,079 for 1941, and paid a dividend of 6 per cent. (the same as in 1940) on its share capital of RM. 8,000,000. The capital has since been increased to RM. 10,000,000. This increase is said to be in connection with the extension of the company's activities to Gdynia; in conformity with this development the name of the company has been changed to the Verkehrsbetriebe Danzig-Gotenhafen A.G. (Gotenhafen is the name imposed on Gdynia by the Germans). The number of passengers conveyed by the tram services in 1941 increased by 29.84 per cent., and reached a record. The number of passengers conveyed by the bus services rose by 67.07 per cent.

Electric Traction in India

Both main-line and suburban services use the 1,500 volt d.c. system

ONLY three railways in India have yet adopted electric traction, namely, the Great Indian Peninsula, the Bombay, Baroda & Central India, and the South Indian. The first two begin in Bombay, but the third is on the other side of India, serving the suburban district south of Madras. The wide 5 ft. 6 in. gauge and generous clearances available on the G.I.P. and B.B. & C.I. Bombay lines have enabled very roomy and comfortable stock to be adopted. The S.I.R. is a metre-gauge line, but even here the trains are equal to anything seen elsewhere on a narrow gauge. The broad gauge, of course, gives greater facility to the designer when arranging the propulsion equipment. Details of the three installations, together with certain technical information on associated subjects, such as diesel railcars and electric tramways, have been brought together in a volume of some 130 pages by Professor Shiv Narayan, who has already published works on Indian water power plants and other subjects. Some statistical and technical information on electric traction generally is included, but is in some cases inaccurate—for example, the L.B. & S.C.R. single-phase system is spoken of as being still at work, and the L.N.E.R. Manchester—Sheffield electrification as being in operation.

It would have been more helpful had the writer given more extensive details of Indian work and traffic operation, rather than include particulars readily accessible in other publications. Nevertheless, Professor Narayan's book gives a good general view of the position in India and provides a ready source of reference.

It is of interest to note that, although the d.c. overhead contact system has been adopted for all work so far, it was at one time proposed to use the single-phase a.c. system for a railway, 156 miles long, which was never constructed but was intended to connect the front of the North West Provinces at Abbottabad with Srinagar in Kashmir. This proposal was made about 30 years ago in connection with establishment of the Ghelum River hydro-electric power plant, and the suggestion is made that single-phase working might be used to advantage in Mysore where the power supply facilities are specially suited to such a course.

Lines Serving Bombay

The section of the G.I.P. Railway from Bombay to Thana, 21 miles, was the first line in India and was opened on April 18, 1853. It was on G.I.P. metals that electric trains ran for the first time in the country, on February 3, 1925, on the Harbour Branch, Bombay. This work was undertaken in connection with extensive city development plans, which would inevitably cause a considerable increase in local passenger traffic. Before this, in 1917, the line had been quadrupled as far as Kalyan, 33 miles. Sanction had been given by June, 1923, to electrify to that place, but the work was carried at first only as far as Kurla, and thence to Thana in 1926. The main suburban route to Kurla, as distinct from the Harbour Branch, was changed in

November of that year. In March, 1929, electrification reached Kalyan.

Power was obtained from the Tata group of hydro-electric stations, situated at the foot of the Western Ghats and four rotary converter sub-stations convert it to the 1,500 d.c. used for traction. The third rail system was not selected, for several reasons: floods are serious at times and the trespassing evil has to be reckoned with in India. The multiple-unit system was, of course, adopted and the Harbour Branch trains had coaches of the unusual width of 12 ft. On the other suburban routes the width is 10 ft. Beyond Kalyan the G.I.P. north-eastern main line leads to Igatpuri, at the top of the Thull Ghat, and the south-eastern main line to Poona, ascending the Bhore Ghat about half way.

Poona is an important civil and military administrative centre, and the traffic at some seasons is very heavy. The journey took 6 hours when the railway was opened, but this had been reduced to 3½ hours by the mail trains. There was one reversing station on the Ghat, but this was eliminated under a re-alignment scheme, which involved three new tunnels—making 27 in all—sanctioned concurrently with electrification, and the timing of the best train, the Deccan Queen, was reduced to 2½ hours. The electrified Poona route was formally opened in November, 1929, and a year later all traffic to Igatpuri was electrically hauled. Power for these main routes is taken from the steam generating section of the railway at Kalyan, feeding 11 sub-stations.

There are both freight and passenger type locomotives, the former with regenerative braking and used for all trains on the Ghat sections, passenger or freight, in the former case as an assisting engine. These engines have coupled axles in two groups of three. The large passenger locomotives had to be designed to work satisfactorily with the freight engines on the Ghat sections. Individual drive was selected, and to begin with three trial locomotives were ordered from separate makers. Both the main and suburban line working has been very successful, although there were some mechanical difficulties in early days.

The B.B. & C.I.R. electrified services are suburban. The 22½ miles from Colaba to Borivli were opened in January, 1928. Four tracks were electrified as far as Bandra, and the local ones beyond. After the opening in 1930 of the new main-line terminus (Bombay Central), the short length of 1½ miles between Colaba and Churchgate was dismantled, and the latter station made the suburban terminus. Virar, 16 miles beyond Borivli, has long been the limit of the suburban area, but, as the traffic was not heavy, electrification was not extended to Virar until 1936. Power for this work is taken from the Tata hydro-electric stations. Rotary converter sub-stations were at first used, but the Bassein sub-station, provided for the Virar extension, has rectifiers. The trains have coaches 12 ft. wide, of all-steel type, and are very attractive and comfortable. Colour-light automatic and semi-automatic signalling, with several important power frames, has

been installed in the area and has given very satisfactory results.

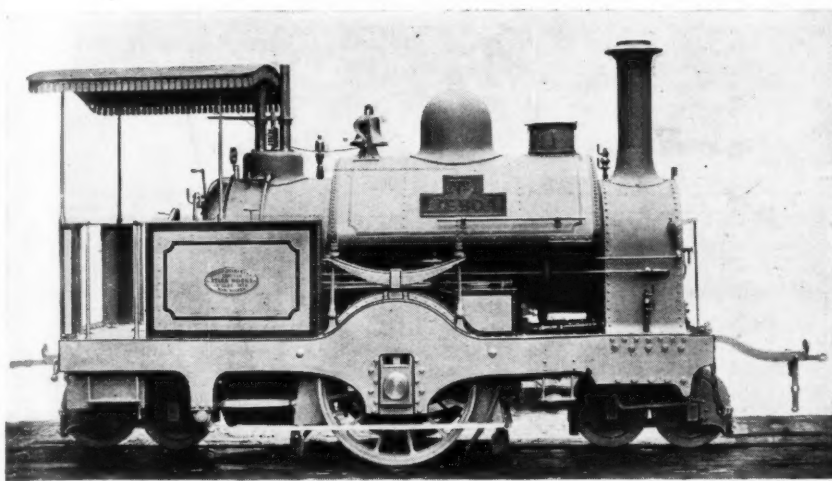
The S.I.R. electrification covers the 18½ miles of double track from Madras Beach, through Egmore, to Tambaram. It was brought into use in April, 1931, and has resulted in a considerable extension of housing along the route, and relief to the congested areas of the old city. A single line for through steam services parallels the electric line, but certain fast through trains are hauled by electric locomotives as far as Tambaram. It is expected that electrification will be extended after the war to Chingleput, 38 miles from Madras. The trains are formed of three-coach all-steel articulated units, of which the centre one is the motor coach. A special feature of the work was the provision of battery tenders to enable the electric locomotives to operate into a number of small yards remote from the main line, which could not be equipped conveniently with overhead wiring. The tenders supply the locomotives at 440 volts and have auxiliary equipment to replace that on the locomotive itself when working away from the ordinary 1,500-volt supply. Colour-light signalling has been installed. Power is obtained from the steam station of the Madras Electric Supply Corporation, and transmitted through rectifier sub-stations, but the proposed extension could be fed from the Mettur Dam hydro-electric plant. The growth of traffic on the line has been remarkable. In 1927-28 fewer than 3 million passengers were carried on the suburban routes, and in 1937-38 this had been more than trebled. Since 1932 over 50 million passengers have been carried.

In all three electrifications, many special engineering problems arising from local conditions, had to be solved, and a large amount of difficult design work has been effected successfully.

The development of hydro-electric and, in districts where this is not possible, steam power stations, in various parts of India, which will eventually be considerably extended, combined with other factors affecting the problem, no doubt will lead when the present conflict ends and political conditions become stabilised in the East, to the further consideration of electrification as a means of improving the train services and effecting economies in working. This will be particularly the case where the mountainous nature of the country necessitates numerous long and steep gradients, over which the traffic is moved with difficulty by steam, and where at the same time water power is, or can be made, available. Some years ago the possibility of applying electric traction to certain such sections of the North Western Railway, including the important Kalka-Simla route, was discussed at length in a paper by Mr. T. A. F. Stone, of the Locomotive Department of that line, and the conclusion reached that electrification would result in great advantages. The North Western line is of much importance strategically and electrification would enable some sections to be operated so much more quickly that a general improvement of the working on the whole system would result, shortening the time required to transport men and materials from one important centre to another. The mountain sections allow of the adoption of regenerative working, with consequent increased regularity and safety on descending grades, reduction of wear and tear on brake shoes, rigging and permanent way, not to speak of the gain from recovered power. This also allows of full advantage being taken of high capacity wagons.

A Road-Rail Locomotive of 1872

British-built for service in Portugal



Road-rail locomotive for the Lisbon Tramways, built in 1872 by Sharp Stewart & Co. Ltd., Manchester

DESIGNED for service on the Lisbon Steam Tramways and built in 1872 by the British firm of Sharp Stewart & Co. Ltd., of Manchester, afterwards merged as a constituent of the North British Locomotive Co. Ltd., Glasgow, the locomotive illustrated herewith may reasonably be described as a road-rail engine. Motion was conveyed to the single driving wheels by a pair of inside cylinders to which steam was distributed by Allan straight-link valve motion and rocking shaft coupled to overhead valves. The driving wheels were flangeless and had a width on the treads of 14 in.; they ran on the road surface, but those of the centrally located

leading and trailing bogies had tyres with centre grooves instead of the ordinary treads and flanges, and these ran on a single rail track; the wheel arrangement was thus 4-2-4. Extra clearance was provided for the driving axleboxes to allow the shocks transmitted from the road to be absorbed and the amply proportioned spring fitted above the wheel will be noted; in addition to this, an underslung laminated plate spring was supported from a supplementary frame which provided a centre bearing for the crank-axle between the two sets of motion. The boiler barrel was tapered.

The engine, as seen, was fitted with a

saddle tank on which was mounted a cover for the steam dome, tank filler, and bell; sanding was arranged at the front of the driving wheels only and the brake-rodding system is of interest. Chains were provided at the leading and trailing ends to permit of a swivelling action of 18° on the part of the bogies when negotiating curves of small radius. These chains were looped and attached at the top to the framing of the engine, and their lower ends were secured to the bogie frames. Available particulars are as follow:—

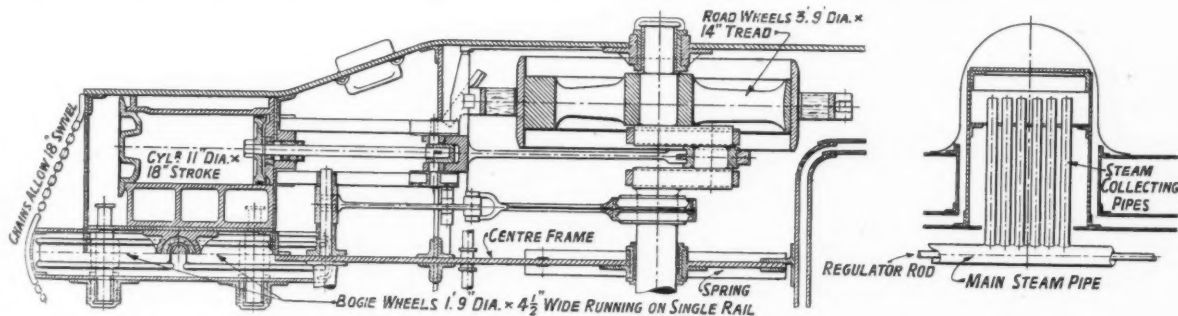
Cylinders (2), dia. ...	11 in.
" piston stroke ...	18 in.
Boiler (inside) front dia. ...	2 ft. 9 in.
" rear dia. ...	3 ft. 4½ in.
" length between tube-plates ...	7 ft. 0 in.
No. of tubes (brass) ...	97
Tubes, dia. ...	1½ in.
Heating surface firebox ...	35 sq. ft.
" tubes ...	265 sq. ft.

Total ... 300 sq. ft.

Grate area ...	6 sq. ft.
Boiler steam pressure* ...	120 lb. per sq. in.
Water capacity of tank ...	200 gal.
Wheels, driving, dia. ...	3 ft. 9 in.
" bogie dia. ...	1 ft. 9 in.
Wheelbase (bogie) ...	2 ft. 0 in.
Wheelbase, total ...	15 ft. 0 in.

* Not definitely known.

The drawings show the somewhat unusual arrangement adopted for steam collection, namely, by means of six small-diameter vertical pipes connecting the main steam pipe with the interior of the dome, and also a view in plan of one cylinder and its rods, part of the crank axle, and a portion of the framing. The regulator valve was located in the smoke-box, and a spark arrester was fitted. Unfortunately it has not been possible to ascertain the weight of this interesting locomotive, nor is the boiler pressure known. We are indebted to the North British Locomotive Co. Ltd. for the originals of the drawing and photo reproduced and also for the above particulars of the locomotive.



Half plan drawing in section showing a cylinder and motion, road and rail wheels, supplementary frame, and centre spring. Right: Vertical steam collecting and main steam pipes

NEW YORK WORLD'S FAIR LOSSES.—The final accounts of the New York World's Fair, which were issued in New York on July 29, show that the debenture holders, who provided £6,700,000 in working capital, will receive a return of about 40 per cent. of their investment. Most of the investors had expected such a loss, which is customary with large exhibitions and fairs. The investors included many of the large American railway companies, as well as banks and business houses, all of which benefited indirectly from the holding of the

fair. The total cost of the exhibition is stated to have been slightly under £39,000,000.

LIEGNITZ-RAWITSCHER EISENBAHN-GESELLSCHAFT.—This company, which belongs to the concern known as the Aktiengesellschaft für Verkehrswesen, returned for 1941 receipts amounting to RM.1,350,000, compared with RM.960,000 for 1940. Expenditure was RM.810,000, against RM.700,000 in 1940. A net profit of RM.15,309 was carried forward (there was no net profit in 1940), after the allocation to

reserves of RM.250,000 (no such allocation in 1940), to the renewal fund of RM.70,000 (no allocation in 1940), and to the reserve fund for maintenance of the line of RM.210,000 (RM.120,000 in 1940). Invested capital amounted to RM.6,280,000 (the same as for 1940), and circulating capital to RM.1,260,000 (against RM.760,000 for 1940). Liabilities were RM.700,000 (compared with RM.740,000 the year before), including RM.560,000, representing debenture loan, which was RM.50,000 less than in 1940.

L.M.S.R. 20-ton Goods Brake Van

THE latest 20-ton goods brake vans of the London Midland & Scottish Railway each have a length over buffers of 27 ft. and other dimensions are as follow:—

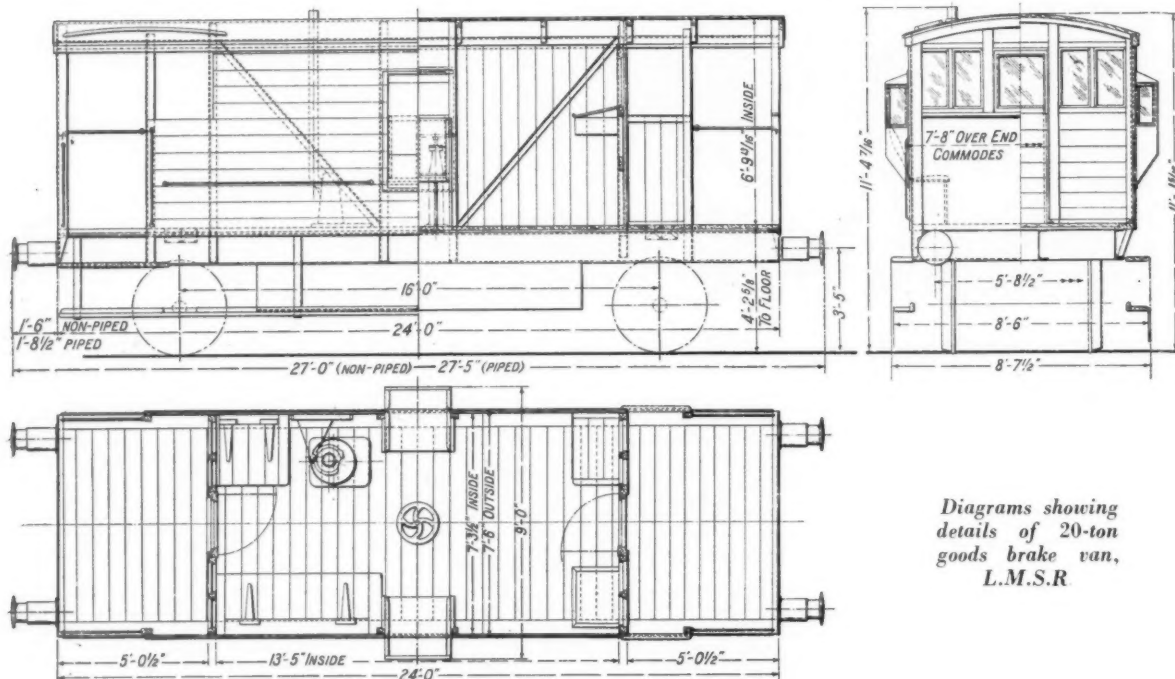
Length over buffers	27 ft. 0 in.
" " body	24 ft. 0 in.
Width over body	7 ft. 6 in.
" " guards' lookouts	9 ft. 0 in.
Journals	10 in. by 5 in. dia.
Wheelbase	16 ft. 0 in.

The vehicles are built on steel underframes with steel body framing and timber sheetings. The compartment is 13 ft. 5 in. long inside with a 5 ft. covered platform at each end.

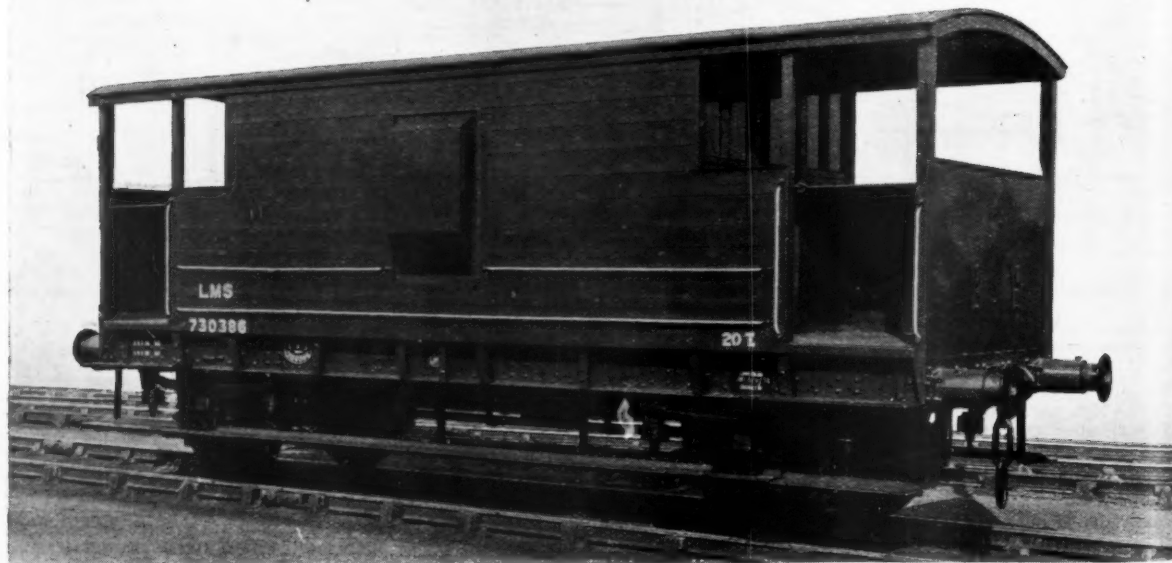
The equipment in the compartment comprises a stove, hand-brake column, two lockers, desk, lamp tray, and a seat in each lookout. The weight of the vehicle is made up by cement ballasting.

The vans are unfitted and have self-contained buffers and three link couplings. The wheelbase of the vehicle has been increased to 16 ft., and the springing improved to give better riding conditions. In this case also the hand rails and lettering are in white.

We are indebted to Mr. W. A. Stanier, Chief Mechanical Engineer of the London Midland & Scottish Railway for the foregoing particulars and also for the originals of the illustrations which accompany them.



Diagrams showing details of 20-ton goods brake van, L.M.S.R.



General view of L.M.S.R. 20-ton goods brake van

The Development of Diesel Passenger Transport on the G.W.R.

I.—Pre-War and Wartime Services

Up to the outbreak of war, the Great Western Railway had 17 passenger and one parcels car in service, running 22,530 miles weekly, which in 1938 carried in all 983,000 passengers. They made non-stop runs up to 54 miles and start-to-stop speeds up to 58.8 m.p.h.

THE first A.E.C. railcar supplied to the G.W.R. in 1933 had a single six-cylinder oil engine, which with its gearbox was of the type extensively used on buses in London; it had accommodation for 69 passengers. This car covered 357,935 miles from February 5, 1934, to September 13, 1941. In July, 1934, there went into service the first diesel express railcars in Great Britain, between Birmingham, Gloucester, Newport, and Cardiff. The three 44-seater railcars with buffets that were built for this service were fitted with twin engines, and this became the standard practice in later construction. In 1935 three more cars were put to work, in the Oxford and Worcester areas, similar (apart from their twin engines) to the original car, except that the passenger accommodation was increased to 70 seats; and early in 1936 there followed another ten, one of which was built to carry parcels traffic only. Three of the last ten cars, which were intended for longer cross-country journeys than the remainder, were provided with lavatories, involving a reduction in accommodation to 63 seats. This gave a total of seventeen G.W.R. cars up to the end of 1936. In 1937 car No. 18, the last of the series, was given a lower gear ratio and fitted with standard buffers and drawgear, to enable it to handle trailer vehicles up to 60 tons in weight, and this car took over the service on the Newbury—Lambourn branch, as well as certain workings between Newbury and Reading. As a result of experience gained from this experiment, twenty further cars were ordered in 1938, four to be in two twin sets, of which both have recently been completed. Fifteen are for miscellaneous service, and the remaining one is a second parcels car. The fifteen cars are intended to replace push-and-pull trains, and for this purpose thirteen of them are limited to a maximum speed of 40 m.p.h., and have a correspondingly higher tractive effort, in order to enable them to handle trailers in the rush hours. As this limitation is a handicap when the car is operating alone, however, the experiment is being tried of fitting the other two cars with dual-range gearboxes, so enabling them to run at either the 40 m.p.h. maximum speed with reserve trailer haulage capacity, or solo at the 60 m.p.h. maximum, as may be required by traffic or gradient conditions.

Diesel-Worked Train Services

It is worth while here to review in more detail the services into which the cars were introduced. Car No. 1, the first to go into service in December, 1933, and the only car of 130 b.h.p. (the remainder are all of 260 b.h.p.), was withdrawn for a short time for brake adjustments, and then went permanently to work on February 5, 1934. This car provided for 16 new services, 2 between Southall and Slough, 6 between Reading and Slough, 4 between Reading and Didcot, 2 between Reading and Henley, 2 between Slough and Windsor, and, in addition, 7 services in the same area taken over from steam trains, with a total daily mileage of 218. In May, 1934, one of the Reading—Didcot runs was extended to Oxford and back. So successful was this innovation that the car carried 40,000 passengers in the first three months of its working, and by October 26 had carried 100,000 passengers. The three express railcars took up their itinerary between Birmingham and Cardiff on July 9, 1934, twice daily in each direction, and at first a supplementary charge of 2s. 6d. was levied on each passenger per single journey, though this addition was withdrawn from July 28, 1935. From April 1, 1935, the Cardiff car started to fill in part of its idle time at the Birmingham end of the journey by making a lunch-time run of 25 miles in each direction between Birmingham and Stratford-on-Avon. Next to go into operation were cars Nos. 5, 6, and 7, at various dates

from July 8 to August 30, 1935, on fairly lengthy runs based on Oxford and Worcester.

The great year in G.W.R. diesel enterprise was 1936, when cars Nos. 8 to 17 inclusive went into service. One car began 16 daily workings between Oxford and Princes Risborough, Banbury, Witney, Didcot, and Swindon on February 3; the Bristol—Weymouth through services, two each way daily, and other services between Westbury and Salisbury, and Yeovil and Taunton, were begun with two cars on February 17; a week later 26 services were taken over by diesel cars between Colwall, Malvern, Worcester, Droitwich Spa, Kidderminster, Stourbridge Junction, and Birmingham; March 16 saw the introduction of 7 daily services between Tenby, Whitland, Carmarthen, Llanelly, and Swansea in West Wales; and on March 23 a car took up 19 daily short runs between Newport, Chepstow, Monmouth, Pontypool Road, Panteg, and Blaenavon. By this time diesel cars had become responsible for 121 daily runs on the G.W.R., 56 of which had come into force during the month of February, 1936, alone. On May 4, 1936, the first diesel parcels car went into service on various daily workings between Paddington and Oxford, and on September 28 of the same year one of the Bristol cars began four daily return trips between Bristol and Cardiff, the first streamlined diesel service to run regularly through the Severn Tunnel. By now the cars were running 3,584 miles daily between them. An interesting innovation, on Sunday, June 28, 1936, was the chartering of one of the cars for the use of a special party from Taunton to Newquay and back; on this occasion the car, which began its journey at Bristol, ran a total distance of 366 miles in the day. This was the first of a number of special trips for which various cars were chartered, chiefly on Sundays.

Car Mileage and Maintenance

Immediately before the outbreak of war the eighteen G.W.R. cars in use were covering a route mileage of 747 daily, or roughly 20 per cent. of the G.W.R. system, and were serving in all 247 stations. They were scheduled to run

TABLE I—G.W.R. DIESEL RAILCAR MILEAGES

Car	Placed in service	Total mileage
No. 1	February 5, 1934	321,361
" 2	July 9, 1934	204,381
" 3	July 17, 1934	220,476
" 4	September 22, 1934	231,584
" 5	July 22, 1935	226,362
" 6	August 30, 1935	232,405
" 7	July 8, 1935	252,765
" 8	March 5, 1936	182,631
" 9	February 3, 1936	244,390
" 10	February 17, 1936	243,309
" 11	February 17, 1936	228,226
" 12	February 11, 1936	240,004
" 13	March 16, 1936	149,412
" 14	March 23, 1936	191,856
" 15	April 6, 1936	208,742
" 16	April 17, 1936	164,301
" 17	April 27, 1936	205,946
" 18	April 4, 1937	144,746
Total		3,892,897

22,530 miles weekly, or about 3 per cent. of the G.W.R. passenger mileage, and the number of passengers carried in them annually had increased from 641,000 in 1936 to 983,000 in 1938, while by March, 1940, the cars then in service had completed nearly 4,000,000 miles. The total mileage achieved per car is shown in Table I. The average annual mileage for all the cars was 53,196, and varied from 70,890 for Car No. 11, on the Weymouth service, to about 43,000 on the Cardiff—Birmingham service, to which three cars were

allocated, one standing spare. Average speed of the single cars varied from the 49.1 m.p.h. round trip of each of the cars last mentioned, with 14 stops included, to the 28.9 m.p.h. of the Pontypool car, with 167 stops to make daily. The Lambourn branch car, based on Reading, and with its adaptation for trailer haulage limited to a maximum of 47½ m.p.h., made 99 stops daily, averaging 2.2 miles apart, and its daily average speed was 23.9 m.p.h. Of the 17 cars, four were normally regarded as spare, to allow, at any given time, of one being at the A.E.C. Southall works for overhaul, one to be in readiness for overhaul directly the previous car under overhaul was ready for test (in order to keep the overhaul staff specially allocated to these cars continuously occupied), and one to be at Swindon for body maintenance, together with the one spare on the Cardiff—Birmingham service. As compared with the original estimate of 25,000 miles between medium overhauls, and 50,000 miles between heavy overhauls, it has been found possible to extend these periods to 35,000 and 75,000 miles respectively—striking evidence of the increasing reliability of diesel propulsion under carefully-controlled conditions.

Two typical daily rosters for passenger cars are shown in Table 2, the cars concerned being Nos. 1 and 11. In the 12 months ended August, 1939, No. 1 car was scheduled

TABLE 2—DAILY SCHEDULES OF PASSENGER CARS NOS. 1 and 11 (Saturdays excepted)

	Arr.	Dep.	No. of stops
Car No. 1:	a.m.	a.m.	
Southall	—	8.33	—
Didcot	10.01	11.07	14
Slough	12.11	12.15	10
Reading	12.46	12.55	5
Twyford	1.03	1.05	1
Henley	1.16	1.34	3
Twyford	1.46	2.24	3
Reading	2.32	3.02	1
Slough	3.33	3.55	5
Windsor	4.01	4.08	1
Slough	4.14	4.27	1
Reading	5.02	5.54	5
Oxford	6.34	6.44	4
Southall	8.28	—	16
Car No. 11:	a.m.	a.m.	
Weymouth	—	10.10	—
Bristol	12.13	12.25	8
Salisbury	1.45	2.10	6
Westbury	3.00	4.10	7
Weymouth	5.32	6.05	7
Yeovil	6.45	7.50	3
Weymouth	8.32	—	5

to cover 70,074 miles and actually covered 61,087 miles—an availability of 87.1 per cent.; five weeks were required out of the year for overhaul. No. 11 was scheduled to cover 70,890 miles, and put in the excellent actual mileage of 70,778 for the year; to offset 4½ weeks spent under overhaul, the car added to its duties certain extra workings and occasional interchange with the Bristol car, which explains the approximation of the actual to the scheduled figure.

Gradients of Railcar Routes

Some of the gradients over which the Great Western diesel cars work in ordinary peacetime conditions are very heavy. For example, in travelling from Yeovil to Weymouth the cars on this service must climb a bank which is for a mile at 1 in 73.65, and then for 2½ miles at 1 in 51, to Evershot; in the reverse direction the start from Weymouth is for 1½ miles at 1 in 74 and then 1½ miles at 1 in 50 to Bincombe summit. The West Wales car has to get up 2½ miles at 1 in 53.50, to Cockett, when travelling to Swansea, and ½ mile at 1 in 60 and 1½ miles at 1 in 52 to Cockett on the return journey. In going up from Newport to Blaenavon the Pontypool car has to climb continuous gradients which for 7 miles vary from 1 in 56 to an inclination as steep as 1 in 42, and at various points has to restart from stops at stations or halts on the grade. Passage of the Severn Tunnel in the east-bound direction involves a climb of 3½ miles at 1 in 100 out of the lowest level of the tunnel to Pilning, and then, after a mile of level, 3 miles more at 1 in 100 to Patchway. Incidentally, this last car on its normal run has a schedule

which is unique on the G.W.R., for 13 per cent. of its mileage is run in tunnel. When this roster was put into operation, a problem was brought to a head, arising out of the relatively silent running of the cars as compared with an ordinary steam train; the staff complained that in the open the car horns were not readily distinguishable from those of vehicles on adjacent roads, and that in the Severn Tunnel their approach was inaudible, so that the men, especially those working on the track, were in danger of being run down. The trouble was overcome by fitting eight horns to each car, four at each end; the two main horns at each end, tuned an octave apart, are operated by compressed air and sounded alternately, and are audible 3½ miles away; the subsidiary horns, worked by small electrically-driven compressors, are for use when the main air pressure has not been built up sufficiently for the loud horns to sound.

Scheduled Speeds

As to speed, Table 3 gives a list of the runs booked by the G.W.R. diesel cars at over 50 m.p.h. from start to stop,

TABLE 3—FASTEST SCHEDULED RUNS BY G.W.R. DIESEL RAILCARS SUMMER, 1939

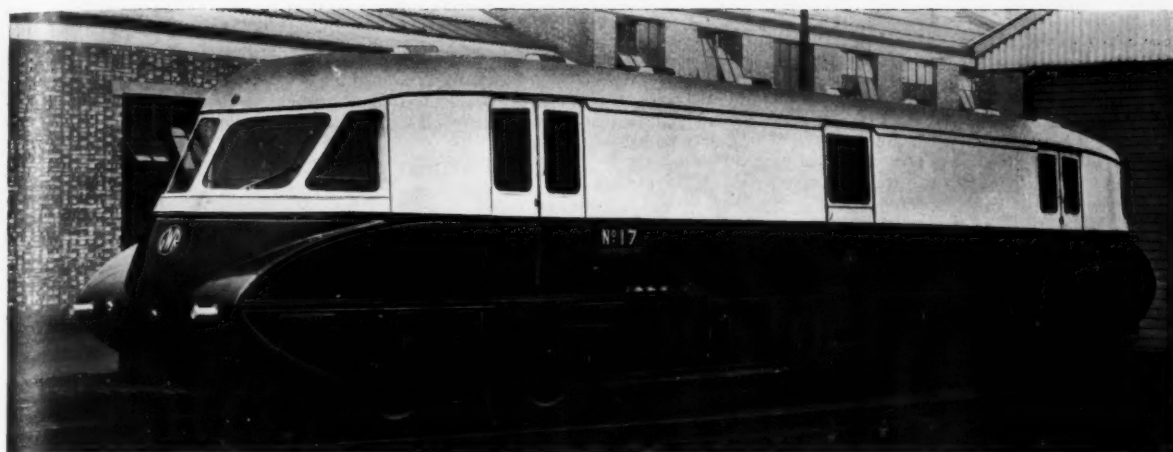
Car	From	To	Distance	Time	Speed
			Miles	Min.	M.p.h.
Weymouth	Castle Cary	Westbury	19.6	20	58.8
Cardiff	Cheltenham	Birmingham	54.1	59	55.0
Weymouth	Yeovil	Castle Cary	11.8	13	54.5
Birmingham	Birmingham	Cheltenham	54.1	60	54.1
Cardiff	Birmingham	Cheltenham	54.1	60	54.1
Birmingham	Newport	Gloucester	44.5	49½	53.9
Cardiff	Newport	Gloucester	44.5	49½	53.9
Oxford No. 1	Oxford	Kingham	21.2	24	53.0
Worcester	Moreton-in-Marsh	Kingham	7.0	8	52.5
Birmingham	Gloucester	Newport	44.5	51	52.4
Birmingham	Kidderminster	Droitwich	9.5	11	51.8
Bristol	Frome	Yeovil	25.8	30	51.6
Birmingham	Cheltenham	Birmingham	54.1	64	50.7
Weymouth	Yeovil	Castle Cary	11.8	14	50.6
Bristol	Castle Cary	Yeovil	11.8	14	50.6

at the outbreak of war. These, it will be noted, numbered 15, with a total mileage of 468 daily, and included 7 non-stop runs exceeding 44 miles in length, and runs timed at up to 58.8 m.p.h. Actually the run of the Weymouth car over the 19.6 miles from Castle Cary to Westbury was for a time scheduled in 18 min., at 65.3 m.p.h. start to stop, but this timing proved too tight, and was later eased out to 20 min. Considerably faster times have, however, been made in special test runs, including one over the 77.3 miles from Swindon to Paddington in 70 min., and one from Oxford to Paddington, 63.5 miles, in 65 min. On the first test of one of the Birmingham—Cardiff express cars, also, 44 miles were run in 40 min., 8 miles consecutively at 70 to 72 m.p.h., and a maximum of 76 m.p.h. was reached; the highest maximum recorded has been about 80 m.p.h. In comparing these figures with the high speeds of diesel trains on the Continent and in America, of course, it must be remembered that the horse-power output of the former is in most cases many times that of the very limited 260 b.h.p. output of the G.W.R. cars. The latter are geared for a nominal maximum speed of 75 m.p.h. (actually about 73 m.p.h.), except Nos. 1 and 18, which are geared for a maximum of 60 m.p.h.

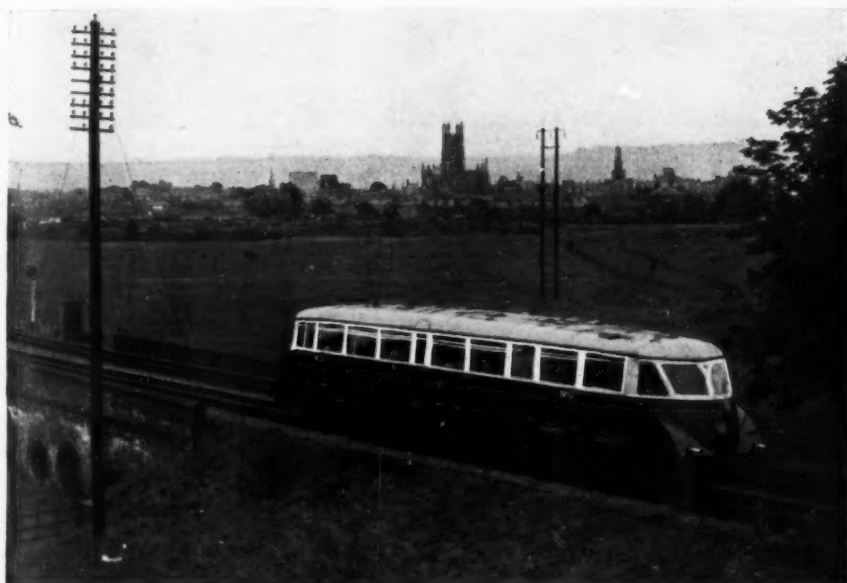
Wartime Services

Of the latest series of cars referred to in the first paragraph, eight are now running, in the following areas: Newport—Chepstow—Monmouth; Kidderminster—Bridgnorth; Bristol—Weymouth; Kidderminster—Woofferton—Ludlow; Weymouth—Abbotsbury—Dorchester—Yeovil; Llantrisant—Cowbridge; Cheltenham—Gloucester—Ledbury; Bristol—Frome—Witham—Wells—Yatton. These cars were installed at various dates from June 24, 1940, to January 12, 1942, and most of the services so taken over were previously handled by push-and-pull steam trains. No. 34, the second parcels car, has from September 15, 1941, been at work in the London area. Cars Nos. 35 to 38 inclusive are the new twin buffet sets,* operated with a 70 ft. trailer corridor coach, for the Birmingham—Cardiff express service, which took up their duties on December 1, 1941; these will be described in detail in the second instalment of this article.

* Buffet facilities now withdrawn

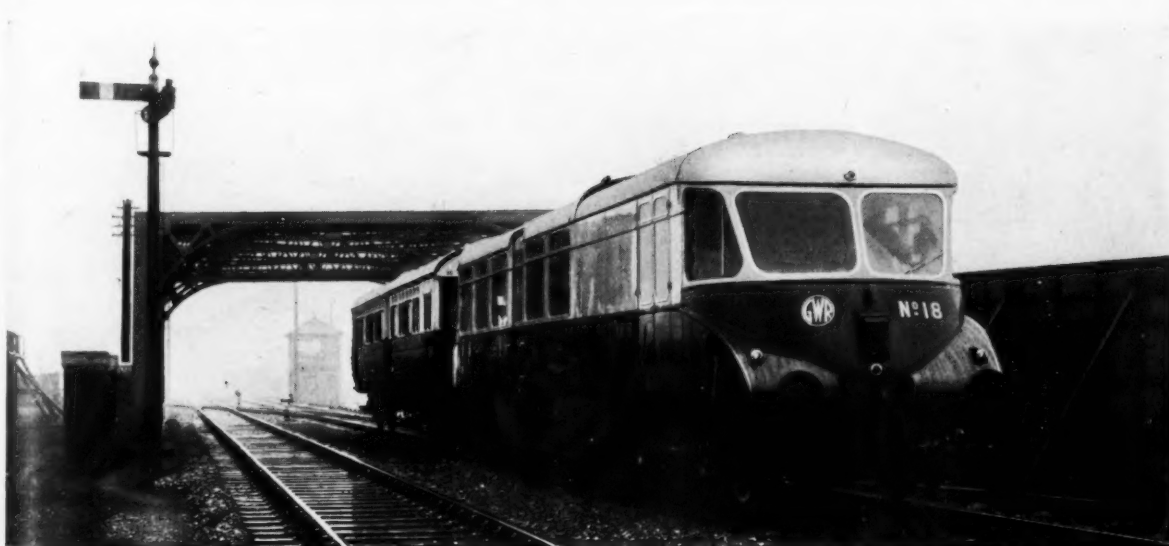


Above: Car No. 17, one of the railcars used for parcels traffic only



Left: Car No. 3, one of the original railcars with buffet, built for the Birmingham - Cardiff express service, at work

Below: Car No. 18, given a lower gear ratio and provided with buffers and drawgear for the haulage of a trailer, on the Lambourn branch service



Concrete Sleeper Blocks on the L.N.E.R.

SINCE the outbreak of war the increasing difficulty of obtaining adequate supplies of timber sleepers has given impetus

taken by the British railway companies. The L.N.E.R. has experimented with concrete blocks as a substitute for, or in con-

The output of these blocks is being increased considerably during the present year. The concrete blocks at present being made by the L.N.E.R. are intended primarily for use in sidings and on other tracks used by slow traffic.

One of the accompanying illustrations shows a concrete block diagonal to the



*Left: Track in a siding laid with concrete blocks and wrought-iron tie bars in 1922. Many of these are still in use.
Right: A concrete block diagonal to the chair*

to experiments which have been going on over a number of years in the use of concrete sleepers, and on a number of occasions reference has been made in THE RAILWAY GAZETTE to the steps which have been

junction with, timber sleepers for more than 20 years, and during 1941 that railway made blocks which, with the requisite proportion of timber sleepers, represented the equivalent of 24 miles of track.

chairs, which is typical of some which have been in use in sidings for 20 years and which are in appearance similar to the stone blocks which, many years ago, were used instead of sleepers.



Section of main line laid in 1927 with concrete blocks and wrought-iron tie bars, interspersed with timber sleepers

RAILWAY NEWS SECTION

PERSONAL

Sir Thomas Ainscough has resigned from the post of Ministry of War Transport Representative for India; Mr. J. R. Masson has been appointed to succeed him, with effect from July 15.

The Crown Agents for the Colonies recently made the following first class appointments:—

Mr. G. L. Harris to be Assistant Accountant, Gold Coast Government Railway.

Mr. J. W. McMath to be Section Engineer, Grade III, Nigerian Railway.

The Secretary of State for the Colonies has approved the following appointment:—

Mr. G. D. Sinclair, Senior Foreman, to be Assistant Electrical Engineer, Kenya & Uganda Railways & Harbours.

Mr. J. W. Cook, Assistant District Goods & Passenger Manager, Perth, L.M.S.R., who, as recorded in our July 17 issue, has been appointed District Goods & Passenger Manager, Aberdeen, commenced his railway service, in 1902, as a clerk at Dumbarton. Later he was transferred to Clydebank, and then, in 1904, to the District Superintendent's Office, Glasgow. He was Relieving Agent attached to that office from 1916 to 1928. In the latter year he became Assistant Stationmaster, Glasgow Central; in 1930 he was appointed Head Office Staff Inspector; and in 1934 he was made Chief Clerk, District Goods & Passenger Manager's Office, Perth. Mr. Cook became Assistant District Goods & Passenger Manager there in 1937.

Mr. J. Marchbank, who is to retire at the end of the year from the post of General Secretary, National Union of Railwaymen, has been presented with a cheque for £270 by members of the railway industry.

INDIAN RAILWAY STAFF CHANGES

H.E. the Governor-General has nominated the Hon. S. N. Roy, C.S.I., C.I.E., I.C.S., Secretary, Communications Department, to be a member of the Central Advisory Council for Railways of which he will also be Chairman. He has been appointed also a member of the Railway Board; in addition to his other duties.

Mr. T. S. Sankara Aiyar, C.I.E., M.L.A., has been nominated by the Governor-General to be a member of the Standing Finance Committee for Railways, of which he will also be Chairman.

Mr. A. A. Phillips, V.D., has been appointed Controller of Railway Priorities in the Department of Communications, as from March 31.

Mr. J. H. Bavin has been appointed to officiate as Deputy General Manager (Special), B. & A.R., as from March 6.

We regret to record the death on July 15, at the age of 73, of Mr. F. V. Russell, C.B.E., Wh. Ex., who formerly was Superintendent of Operation of the Great Eastern Railway, and then, until his retirement in 1933, was engaged mainly upon special investigations, in connection with electrification and other schemes, for the L.N.E.R. Mr. Russell was mainly responsible for the introduction of the intensive steam suburban ser-



The late Mr. F. V. Russell, C.B.E.

Formerly Superintendent of Operation, Great Eastern Railway

vice between Liverpool Street and Enfield Town, and Chingford, in 1920; these services provided an increase in frequency, during peak hours, of from 50 to 75 per cent. He entered the service of the former Great Eastern Railway in 1886, as an apprentice to the Locomotive Superintendent. At the age of 19 he was fourteenth on the list of successful candidates in the examination for Whitworth Scholarships. Later he joined the Works Manager's Department, and spent some time, in various parts of the country, inspecting material for use in mechanical construction. In 1893 he was attached to the Drawing Office at Stratford, where finally he became Chief of the Locomotive Designing Section. His next appointment was as Chief of the Experimental Department in connection with locomotives in steam; afterwards he became Locomotive Running Superintendent, which position he held until 1914, when, on the reorganisation carried out by Sir Henry Thornton in that year, he was appointed to the new post of Superintendent of Operation. In this capacity he had charge of all matters relating to the movement of traffic, including the running of locomotives and the purchase of coal and other fuel, and of the company's police and fire brigade. Mr. Russell received the O.B.E. in recognition of his services

during the war of 1914-19, and in 1920 he became a Commander of the same Order.

Mr. C. W. Edgar, M.M., Expenditure Accountant, South African Railways & Harbours, is acting as Chief Accountant for Lt.-Colonel N. N. Ellis, while the latter is engaged on military duties. Mr. Edgar joined the old Orange Free State Railway in 1898, and in 1900 was transferred to the then Imperial Military Railways; in 1908 he entered the Expenditure Section, Johannesburg, where he served until shortly before the outbreak of war in 1914. He served overseas with the South African Brigade from August, 1915, until June, 1919, and was awarded the Military Medal and bar. On his return, he went to Cape Town, where he served in the Expenditure Section and became Expenditure Clerk. In 1933 he was transferred to Durban as Principal Clerk; and in 1934 to the Chief Accountant's General Section, Johannesburg. He became Chief Expenditure Auditor at Johannesburg in 1935, and, later that year, Local Accountant, Bloemfontein; in 1937 he was transferred to Cape Town in the same capacity. From December, 1940, until February, 1942, Mr. Edgar acted as Revenue Accountant and Expenditure Accountant at Johannesburg, after which period he was appointed Revenue Accountant. He became Expenditure Accountant and Acting Chief Accountant in April last.

The King, on Tuesday, July 7, at Buckingham Palace, conferred the honour of Knighthood upon the undermentioned, whose names appeared in the recent Birthday Honours List, published in THE RAILWAY GAZETTE of June 19: Messrs. Geoffrey Duke Burton; John McLean Duncanson; Holbrook Gaskell, O.B.E., M.I.E.E., A.M.I.Mech.E.; John Frederick Heaton; Robert Stewart Johnson, O.B.E.; Frederick Charles Yapp.

Captain J. J. Barker, who, as recorded in our July 17 issue, has been appointed Marine Superintendent, Goole, L.M.S.R., entered railway service there as an office boy 40 years ago. Later he served at sea, as A.B., second mate, third officer, and second officer, in various ships; he gained his master's certificate in 1913. Captain Barker returned to shore life in 1926, when he was appointed an Outdoor Assistant at Goole. He was Acting Marine Superintendent there before receiving his present appointment.

We regret that Mr. Robert Tebbutt Russell was referred to in our February 20 issue as Mr. Robert Tebbutt. The entry concerning him, as a member of the Institution of Locomotive Engineers, should have read:—

Mr. Robert Tebbutt Russell, Designing Engineer in charge of Locomotive Design Office, Chief Mechanical Engineer's Branch, New South Wales Government Railways.



A view of Yemassee Junction, South Carolina, between Charleston and Savannah

[Photo from "Life"]

The double tracks of the Atlantic Coast Line here cross the single track of the Charleston & Western Carolina Railroad. The Atlantic Coast Line, of course, carries a heavy passenger service in addition to a substantial freight traffic. The wartime importance of the Charleston & Western Carolina RR. has been increased by the fact that it links Augusta (Georgia), 25 miles beyond Yemassee, with the extensive Parris Island Marine Training Station. Marine recruits from Palmetto change at Yemassee Junction to the C. & W. C. RR. for Parris Island



Novel G.W.R. Fire-Fighting Device

Left: The device in action

Right: Close-up of engine - connection (see paragraph opposite)

Civ
Th
anno
casu
King

Kill
Inju

Kill
Inju
h

An
coal
the
coal
resid
quet
and
hold
13½
of o
the
and
bein
engi
pass
prov
expe

A
July
in C
jour
elim
subs
and
250
5 p
were
end
atte
draw
neys
the

Lo
of a
in c
rubl
East
stop
Ald
abou
after
of st
of b
on th
stop
secti
and
will
task
stop
alon
stop
now

N
A
adop
meth
dock
whic
used
resu
cons
fitter
conn
over
engi
equi
effec
stan
By

TRANSPORT SERVICES AND THE WAR—149

Civilian Air Raid Casualties in June

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during the month of June:—

Killed (or missing and believed killed)...	...	300	
Injured and detained in hospital	...	337	
	Men	Women	Under 16
Killed or missing ...	126	137	37
Injured and detained in			
hospital ...	133	168	36

Briquettes Save Coal

An economy in the use of locomotive coal is being achieved on the L.N.E.R. by the use of fuel briquettes composed of coal dust, saw dust, and tar or petroleum residuum as a binding agent. The briquettes measure 10 in. by 6½ in. by 4½ in., and are thus slightly larger than a household brick. After being baked they weigh 13½ lb. each. They are mixed with supplies of ordinary steam coal approximately in the proportion of 25 per cent. briquette and 75 per cent. coal. The briquettes are being used experimentally on L.N.E.R. engines hauling freight trains and local passenger trains, and so far they have proved satisfactory. No difficulty has been experienced in maintaining steam pressure.

London Bus Parking Scheme

A beginning was made on Wednesday, July 15, with the scheme for parking buses in Central London whereby non-essential journeys, during slack hours, will be eliminated eventually on 80 routes, and substantial quantities of petrol, fuel oil, and rubber saved. From July 15, about 250 buses on 38 routes were parked at 5 points, and a week later further routes were dealt with. The buses are parked end to end, and are in charge of uniformed attendants during the day. The withdrawals are confined to non-essential journeys at times when the flow of traffic is in the reverse direction.

London Bus Stops Reduced

London Transport has adopted a policy of abolishing a number of stopping places in order to effect economies in fuel and rubber. A beginning has been made in East London by removing 41 out of 149 stops (or 28 per cent.) on all routes between Aldgate and Chadwell Heath, a distance of about 9 miles. The selection was made after very careful observation of the user of stops, and, in view of the large number of bus and trolleybus routes which work on this road, it is thought that the remaining stops should prove adequate. Further sections of route are now being examined, and it is hoped that the whole of the work will be completed within six months; the task is large, for there are some 7,000 public stopping places in the Central London area alone. In addition, some routes have no stopping posts, and the opportunity will now be taken to introduce them.

Novel G.W.R. Fire Fighting Device

Among the many fire-fighting measures adopted by the G.W.R., is an ingenious method introduced at the South Wales docks and at main-line locomotive depots, which enables certain tank engines to be used as mobile fire-fighting units. This result is achieved by means of an adaptor consisting of a short length of flexible hose fitted with screw-threads which is used to connect a standard fire hose to the injector overflow pipe of the engine. In the case of engines of the 97XX class, which are equipped with the Weir pump, a similar effect has been obtained by fitting a standard hose connection to the pump. By using steam from the boiler as a pro-

pellant, water from the tank of the engine can then be thrown in a jet for a distance of approximately 50 ft. Instructions have, of course, been issued to prevent locomotives becoming immobilised through lack of water. (See pictures opposite).

The fire-fighting service which can be rendered without refilling by engines fitted with this device is limited by the amount of water in the tank, the capacity of which may vary from one to four thousand gallons; but it is nevertheless expected that this addition to the company's fire-fighting equipment will be of considerable assistance in dealing with outbreaks of fire, particularly in the early stages.

Government Control of Canals

The decision of the Government to bring the principal canals and public carriers by canal under a scheme of control similar to that which is exercised over the railways (to which we made editorial reference at page 689 of our June 26 issue) was implemented by the Canal Control Order, dated July 1, 1942, made by the Minister of War Transport under Regulation 69 of the Defence (General) Regulations, 1939. The text of this Order, which came into force on July 1, has now been issued. Under it the Minister of War Transport takes control of the undertakings or portions of undertakings in Great Britain wholly owned by, leased to, or operated by, any one or more of the following undertakers:—

1. Aire & Calder Navigation.
2. Aire & Calder & River Don Navigations Joint Committee (New Junction Canal).
3. Birmingham Canal Navigations.
4. Bridgewater Department of the Manchester Ship Canal Company.
5. Calder & Hebble Navigation.
6. Coventry Canal Navigation.
7. Gloucester & Sharpness Ship Canal and Worcester & Birmingham Canal { Sections of Sharpness Docks & Gloucester & Birmingham Navigation Company
8. Grand Union Canal Company.
9. Lee Conservancy Board.
10. Leeds & Liverpool Canal Company.
11. Oxford Canal Company.
12. Severn Commission.
13. Sheffield & South Yorkshire Navigation Company.
14. Staffordshire & Worcestershire Canal Company.
15. Stourbridge Navigation.
16. Trent Navigation Company.
17. Trent Navigation Committee (Nottingham Corporation).
18. Weaver Navigation Trustees.
19. Frederick J. Abbott Limited.
20. Samuel Barlow Coal Co. Ltd.
21. S. E. Barlow.
22. Calder Carrying Co. Ltd.
23. Canal Transport Limited.
24. Erewash Canal Carrying Co. Ltd.
25. Fellows Morton & Clayton Limited.
26. Grand Union Canal Carrying Co. Ltd.
27. Severn Carrying Co. Ltd.
28. Warwickshire Canal Carrying Company.
29. T. F. Wood & Co. Ltd.

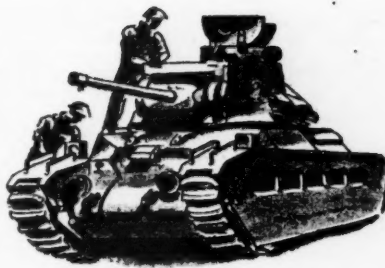
The release from this Order of any undertaking or part of an undertaking may be made by writing under the hand of the Minister or of the Director-General or Deputy-Director-General or any Assistant Secretary of the Ministry of War Transport.

Trains between Germany and Kiev

Two fast trains daily, in each direction, have operated between Berlin and Kiev since early in June. The route is via Warsaw, Deblin, Lublin, Chelm, Kowel, Rowne, Zdolbunow (the pre-war Polish frontier station for the U.S.S.R.), Zhitomir, and Kasatin. It takes about 38 hours to cover the whole distance, against 35 in peacetime. There is now also a regular daily fast train in each direction between Königsberg and Kiev (28 hours) via Bialystok, Brest, Litovsk, and Bugiem, joining the Berlin route at Kowel.

The Swiss 1942 Timetables

The Swiss timetables for 1942-1943 were brought into use on May 4, simultaneously with the change to Summertime. To re-



Bus maintenance staff — otherwise engaged.

There's a deal of difference between a forward repair unit and the steady, daily routine of bus maintenance shops. But the fellows have taken to it like ducks to water—quite a lot of them. Today the buses are harder pressed than ever—new special services for workers, in all weathers and black-out—with depleted and substitute staff. It means, of course, inconvenience at home and buses not so spick and span as they used to be, but the country is fortunate in finding such men, ready, trained and eager to do a job of work that ranks so high in the tactics of mechanical warfare.



BRITISH BUSES

ISSUED BY THE BRITISH OMNIBUS COMPANIES PUBLIC RELATIONS COMMITTEE

The first of the series of goodwill advertisements issued by a large group of provincial bus companies (see page 51 last week). It appeared in "The Times" of July 15

duce wear and tear on rolling stock and also to facilitate recovery of time lost through permanent way slacks, etc., the journey times of all trains on the Gotthard route and of all trains timed over 75 km.p.h. (47 m.p.h.) were lengthened by 10 per cent. The maximum speed of the light-weight stopping trains was reduced from 100 to 90 km.p.h. (62 to 56 m.p.h.) and an increase in lead allowed. Many other services have also been slowed to accommodate the heavier traffic. Generally the restrictions in force from October, 1941, and increased in March, 1942, have been continued. Additional summer trains are limited to a few indispensable cases and a certain number of winter sports trains provided as conditional trains. It remains to be seen whether it will be possible to run any of them. Every effort has been made, in view of the numerous connections that must be allowed for, to keep the essential features of the timetable, but some curtailment of facilities has been unavoidable. The daily mileage for passenger trains is now just under 51,580 (83,000 km.), with a slight addition in mid-summer, principally by reason of increased services over the Brünig route. Because of the war, there is still no service between Vallorbe and Pontarlier or Basle and Delle. The Simplon-Orient sleeping-car service from Lausanne to Trieste was terminated in March, and has since been replaced by one from France via the Mont Cenis route. Italy had agreed to a through connection from Switzerland over the former Simplon-Orient route, reaching

Sofia and Salonika, but later cancelled its consent, so that passengers have to use ordinary services involving many hours wait in Milan. Compared with the summer period of 1939, there is a loss of daily mileage of about 17.5 per cent.

Zagreb-Split Line Reopened

According to information issued by the Zagreb railway management, traffic was completely resumed on May 4 on the 424 km. (263-mile) Zagreb-Split main line. The line had been damaged at various points in the course of the fighting between Yugoslav Patriots and the forces of the Croatian puppet state. Split, the main seaport of Yugoslavia, is now in Italian-occupied territory.

Transport in Bulgaria

Landslides have recently interrupted the through service on the new Chumen-Karnobat north-south line, and it is not expected that through traffic will be resumed for a considerable time. All traffic has been diverted to the route via Gorna Orehovitza and Stara Zagora, and new rates for this diversion have been introduced.

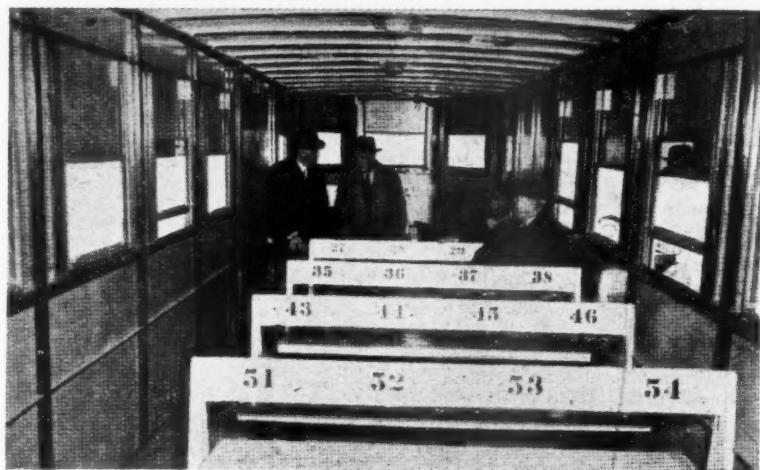
The ferry service across the Danube between Giurgiu (Giurgevo) and Russe (Rouschouk) was resumed on May 18.

Traffic between Bulgaria and Turkey

Prolonged negotiations have taken place between Turkey, Bulgaria, and Germany about the reconstruction of the bridges across the rivers Maritza and Tundja in north-eastern Greece close to Edirne (Adrianople) which were destroyed at the time of the German invasion of Greece, and also about the resumption of through traffic. In particular, the operation and control of the portion of the line across Greek territory proved a delicate matter, as the occupation of parts of Greece by Axis forces is recognised by Turkey only as *de facto* and not *de jure* occupation. Eventually the Turkish viewpoint was accepted by the other parties and accordingly Turkey has assumed responsibility for the control and operation of the whole line from Istanbul up to Svilengrad, the Bulgarian frontier station. Traffic was restored on June 17 as recorded at page 18 of our July 3 issue. At present passenger services are being maintained between Istanbul and Svilengrad (once daily) and between Istanbul and Sofia (also once daily). It is expected that the Mont-Cenis Orient Express, a twice weekly train inaugurated on May 4 (see page 42 of our July 10 issue), will shortly be extended from Sofia to Istanbul.

U.S.A. War Operating Code

A twelve point statement of Government policy regarding passenger transport has been issued by the Office of Defense Transportation to all local transport operators and Public Authorities throughout the U.S.A. Broadly, it aims at securing the greatest possible use of existing passenger transport vehicles, giving preference to trams rather than buses in order to conserve the use of rubber. To this end it requires the discontinuance of bus and trolleybus services over routes where trams can offer reasonable facilities, and the diversion of passengers from bus services to trams wherever possible. It recommends operating buses on shuttle services as feeders to tramways instead of maintaining through routes. Stopping places are to be reduced so that they are not less than 660 ft. to 1,200 ft. apart. A policy of staggering working hours is recommended, and it is suggested that traffic control devices should be timed to give preference to the needs of public service vehicles rather than private



The "war model" bus of the U.S.A. Office of Defense Transportation, to carry 141 passengers

cars. Private hire of buses is limited to the transport of workers to and from places of defence employment and similar situations; and extensions of existing routes or the inauguration of new bus routes are similarly restricted. Schedules are to be revised so as to reduce slack hour workings, and it is recommended that arrangements be made for parking buses on the highway to avoid dead mileage.

U.S.A. Railways Austerity Plan

The principal U.S.A. railway companies have agreed to a plan tending to discourage all non-essential railway travel for the duration of the war. The advertising of travel facilities will cease, and publicity will be limited to informing the public of the part being played by the railways in winning the war. The running of special trains for conventions, sports events, etc., will be restricted, and there will be limitations on the so-called luxury cars, including club cars, lounge cars, and bar cars, where such limitations would increase passenger-carrying capacity.

U.S.A. "War Model" Buses

Similar steps have been taken in the U.S.A. to those which have already been described and illustrated in our columns concerning Great Britain in connection with the emergency transport of war workers to new plants where no regular transit facilities are available. The American Office of Defense Transportation has designed for this purpose a "war model" bus to carry a total of 141 passengers. The

first of these vehicles, which was designed and built in 30 days, is shown in the accompanying illustrations. It consists of a 14-ton tractor and a trailer with 87 fixed seats and 24 drop seats, as well as room for 30 standing passengers. The overall length is 55 ft. and the length of the trailer 45 ft. The width is 8 ft. and the overall height is 11 ft. 2 in. unladen. The weight of the trailer (in English measurements) is 5 tons 7 cwt. 16 lb. Experience has shown that the vehicle is capable of good speed and affords reasonable accommodation, but needs modification in various respects so as to give improved operating efficiency and meet safety requirements. Officials of the O.D.T. believe that units of this type can be produced at the rate of 1,000 a month within three months of undertaking mass production.

It may be recalled that an unorthodox type of articulated bus built under the auspices of the Ministries of Supply and Labour to solve the problem of distributing staff to munition factories in Great Britain was illustrated at page 241 of our issue of September 5, 1941. It accommodates 60 persons, 50 on wooden seats and 10 standing. The body is 8 ft. 4 in. overall. A modified version of this articulated vehicle built to wartime standards for passenger carrying on public roads was illustrated and described at page 573 of our issue of May 15, 1942. This bus is 7 ft. 7 in. in overall width and seats 40 passengers. The overall length of the complete unit (tractor and trailer) is 33 ft. 6 in.

1 HEBBLE MOTOR SERVICES LTD
 2 YORKSHIRE WOOLLEN DISTRICT TRANSPORT CO LTD
 3 HEBBLE AND YORKSHIRE WOOLLEN DISTRICT JOINTLY
 4 SHEFFIELD JOINT COMMITTEE

XUM

Accidents on British Railways in 1941

The annual report of the Chief Inspecting Officer of Railways, Ministry of War Transport, issued to-day, shows that in train and movement accidents in Great Britain last year there were 534 fatalities, as against 453 in the previous year. The deaths resulting from train accidents amounted to 50 passengers and 7 railway servants, as compared with annual averages, for the five-year period 1935-39, of 17 and 10, respectively. The increase is to be regretted, but the Chief Inspecting Officer does not regard it as surprising under the conditions which prevailed, and feels justified in reporting that a high standard of safety was maintained in general. Among passengers, the liability to casualty in train accidents worked out at one killed in some 26.6 million carried. Of the 344 train accidents reported, 157 were caused by human failure, and in many cases it required the cumulative effect of two or three such failures to bring about the accident. With reference to this subject, it is stated that fatigue, heavy traffic, and less-experienced staff were important elements, but that the black-out and war conditions generally were factors of at least equal importance. Trains running out of course, the operation of many specials, conveyance of exceptional loads, and abnormal weather conditions all imposed a greater strain on the staff, and this was accentuated by an unusually heavy sick list. The incidence of accident, however, has not been affected materially by track, rolling stock, and maintenance difficulties, for which great credit is due to the departments concerned.

In accidents connected with the movement of railway vehicles, exclusive of train accidents, 104 passengers were killed, as compared with an average of 68 for the five-year period 1935-39. The majority of these fatalities resulted from persons attempting to enter, or alight from, trains (32), falling from trains (31), and falling off platforms (18). It is stated that these

accidents were due mainly to misadventure, or were caused by want of caution on the part of passengers themselves; fifty-two of the fatalities occurred after dark. Publicity is being intensified by notices on the inside of carriage doors, by loud-speaker warnings, and by propaganda generally.

Railway servants suffered 314 fatalities in movement and non-movement accidents, against 281 in 1940, and an average of 228 for the five-year period 1935-39. The black-out, it is stated, may have contributed to about 8 per cent. of the casualties, although there was evidence of improvement in this respect as compared with the previous year. Everything possible is being done to assist in improving operating efficiency and safety within the limits that war conditions prescribe. There was a noteworthy increase in the number of women employed during the year, and they are engaged in a large variety of occupations. They have proved themselves readily adaptable to their new duties, and are responsive to instructions intended for their personal safety.

As a measure of war-time economy, the report has not been printed and put on sale in the usual way. Copies, however, will be circulated to the railway companies and to the trade unions concerned; it will be available also for inspection at the Ministry of War Transport library.

Questions in Parliament

Below are summarised Answers to Questions in Parliament affecting transport. The Minister concerned and the date of the Answer are given in parentheses

Fuel Rationing

The cost of the staff required to carry out the scheme of rationing fuel in the first year would be about £750,000. The rationing scheme is designed to save 10,000,000 tons of coal. There can as yet be no basis for an estimate of the saving that will be achieved

by voluntary economy. (Major G. Lloyd George, Minister of Fuel & Power, July 14).

Coal Deliveries to Industrial Consumers

In accordance with the policy outlined in paragraph 23 of the White Paper on coal, discussions have been opened with my colleagues principally concerned on arrangements for the block allocation of coal to industries. The distribution among the individual units in an industry will be made, under the control of my department, in agreement with other departments concerned. The programmes of supply thus formulated will make provision for the levels of stock appropriate to the various classes of industry. Pending the completion of these programmes, in order to effect an immediate saving in the consumption of coal by industry—as required by the White Paper—I have restricted deliveries to all but a few classes of industry. I would take this opportunity of emphasising that, although individual anomalies may result from this temporary measure, and will be corrected as they arise, industrial consumers must, unless and until output improves, accept the necessity of a reduction in supplies. (Major G. Lloyd George, July 14).

Electric Lights in Trains

The provisions of the Waste of Fuel Order issued on June 26 would apply to waste of electricity by the use of electric lights in trains during daylight. (Major G. Lloyd George, July 14).

Railways Post-War Policy

A preliminary survey is being made of the post-war transport problems, including the position of the railways. Before any



Recently an inspection of railway work in the Southern and North Eastern Areas was carried out by the L.N.E.R. on behalf of the Ministry of War Transport

Left to Right: Sir Ronald Matthews (Chairman, L.N.E.R.), Sir Alan Anderson (Controller of Railways & Chairman, Railway Executive Committee), Mr. C. M. Newton (Chief General Manager, L.N.E.R.), Colonel Sir Alan Mount, (Chief Inspecting Officer of Railways, Ministry of War Transport), and Sir Murrough Wilson (Deputy Chairman, L.N.E.R.)



French Tricolour flying over Charing Cross Station on July 14

proposals for future policy are formulated, full opportunity will be given to all interests concerned to express their views, and, of course, no such change as the nationalisation of the railways could be made without the approval of Parliament.

He had not seen the statement, by the President, at the conference of the National Union of Railwaymen, that the Government had already decided that there would be no private ownership of the railways after the war, but it was not made by a representative of the Government and did not represent a decision taken by the Government. (Sir Arthur Salter, Joint Parliamentary Secretary to the Ministry of War Transport, July 14).

Holiday Trains

I am asking the Railway Executive Committee what information they can furnish as to the number of trains on the railways that have been duplicated during the last three months; the number of additional trains put on during the last three months; and an estimate of the additional amount of coal which will be consumed as a result of the additional and duplicated passenger trains permitted to be run to and from holiday resorts during the summer months. (Sir Arthur Salter, July 15).

Railways are permitted to run additional trains if required for their passenger traffic provided that no such train is to run if it interferes with freight traffic. In the absence of an individual permit system, which would involve very great labour as well as inconvenience to the public, there is no way of distinguishing between those on holiday and those on essential business, and many of the latter would be left behind unless this measure of discretion were given to the companies. These instructions were given when the summer timetable was being settled towards the end of April and did not call for publication. The case of wakes weeks and town holidays is somewhat different. Here there is a demand over a limited period consisting almost wholly of travel over short distances. The Minister of War Transport has directed that in no case shall the trains run on these occasions exceed those of last year. (Sir Arthur Salter, July 15).

Transport in North Staffordshire

The North Staffordshire Transport Consultative Committee has not met since January. With the better supply of vehicles, spare parts, and labour, many improvements have been effected in the bus services and others are being planned. I am informed that the special services to the larger factories are satisfactory, and that the town services are generally adequate, though there is some congestion in the evening peak period, which would be eliminated by the staggering of working hours in the pottery industry. The working committee of bus operators has submitted a plan for staggered hours to the Chamber of Commerce for early discussion with the managements and workpeople, after which a meeting of the consultative committee will be convened. (Sir Arthur Salter, July 15).

Mr. Arthur Deakin, Acting General Secretary of the Transport & General Workers' Union made a report on North Staffordshire transport to the Inland Transport War Council following a visit which he paid to North Staffordshire. His comments are being kept in mind. (Sir Arthur Salter, July 15).

London Passenger Transport Board

There are of military age in the employment of the London Passenger Transport Board 7,690 drivers, 865 conductors, and

819 washers and general hands on road vehicles; the board has not applied for the deferment of the calling-up of conductors, washers, and general hands. So far as the board is aware, none of the men in any of these classes are Army reservists receiving reserve pay. (Sir Arthur Salter, July 15).

L.N.E.R. Refreshment Rooms

I am informed that it is the practice of the London & North Eastern Railway Company to serve tea at all hours during which station buffets are open. (Sir Arthur Salter, July 15).

Road Traffic Lights

Arrangements have already been made for a review of all road traffic-light signal installations, to determine what reductions can be made. (Sir Arthur Salter, July 15).

Bus Services in Glasgow

The heavy demands in the neighbourhood of Glasgow for workers' services, which must take precedence, preclude general facilities on the prewar standard, but efforts are being made to expand somewhat the resources of the local bus operators so as to enable them to deal adequately with all essential travel. As to East Renfrewshire, I understand that Major E. G. R. Lloyd has sent to the Regional Transport Commissioner some recent complaints in regard to a service between Newton Mearns and Glasgow. The commissioner has this matter actively in hand. (Sir Arthur Salter, July 15).

Post-War Policy

Preliminary examination is now proceeding on a wide range of post-war transport problems, including that of the railways. No doubt when the time comes to formulate policy as to the future of the railways all interests concerned will be given full opportunity of expressing their views. (Sir Arthur Salter, July 15).

Iron Signposts

The Minister of Works & Planning is taking steps to recover iron signposts, after consultation with the highway authorities concerned, where the scrap recoverable is commensurate with the amount of labour and cost involved. (Sir Arthur Salter, July 15).

Parliamentary Notes

Producer Gas

Lord Barnby in the House of Lords on July 14 asked the Government whether in view of the increasing needs to save shipping space, and the possibilities of so doing through substitution of producer gas driven road vehicles, to which attention had been drawn by debates in Parliament, information could now be given as to long-range plans for location and distribution of necessary substitute fuels.

Lord Leathers (Minister of Transport) replied that the Government was fully aware of the necessity for relating the supply and distribution of fuel to the conversion of vehicles, and as part of the plans for this purpose the total present output of suitable anthracite, surplus to present producer-gas demands, was being taken into stock by operating companies. Further development beyond the 10,000 of which he informed the House on April 28, must largely depend on widening the range of suitable fuels and research experiments, and tests to secure that were being energetically pursued.

Lord Barnby said he put his question with the object of obtaining an indication of the policy of the Government as to a longer range distribution of fuel that would be needed throughout the country. The

answer given by Lord Leathers suggested that those plans were not developed.

Lord Leathers said that so far as fuel was concerned for the 10,000 vehicles that were being converted, the supplies would be made available at those points in the country where the vehicles would be run for the selected business that had been taken for those concerned. It was not easy to describe it in any other words because those points were about to be determined. As the House knew, they had had to be very selective in the vehicles and the trades, and when they had been finally determined the Ministry would finally determine the precise points and roads where this service of fuel would be maintained. As to further developments, his immediate difficulty was that he could not see any additional anthracite being made available beyond that needed for the 10,000 vehicles that were now being catered for. They knew that there would be a need to consider the increased development of producer-gas vehicles, and it would require very close intensive study to find out how they were going to secure anthracite or other fuel which would be necessary properly and effectively to carry out that work. Intensive study and experiment would be needed to get increased output and he would do his best to ensure that it should be available.

Staff and Labour Matters

Expenses to Platelayers

A decision by the Chairman of the Railway Staff National Tribunal has been issued recently on a claim by the N.U.R. that when platelayers are working off their own lengths and at a distance of not less than two miles from the centre of their own length, measured by rail, they shall be entitled to the allowances laid down in clause 58 of the third memorandum on points of interpretation, dated July 1, 1921. The clause makes no express provision as to how distance is to be computed, but it appears from the agreed statement of case submitted that it is the general practice of the companies in determining whether a platelayer working off his own length qualifies for the allowances provided for in clause 58, to give consideration to the shortest reasonable route, whether by rail or road, between the centre of his own length and the point off it at which he is required to work, and this practice is stated to have prevailed since clause 58 first became operative.

The union claimed that on its true interpretation the clause should operate to qualify, for the special allowances involved, any platelayer who is required to work at a point not less than two miles, measured solely by rail mileage, from the centre of his own length; alternatively, the union contended that the merits of the case demand that any platelayer required to work in the circumstances set out should be entitled to allowances similar to those specified in clause 58.

The companies contended that upon the true interpretation of clause 58 they are justified, when considering its application to a platelayer working off his own length, to compute distance by the shortest reasonable route, whether by rail or road, and further, that on the merits, no case can be made out for a computation of distance solely upon the mileage measured by rail.

The Chairman of the tribunal awards against the claim of the union both in respect of the question of interpretation raised and upon the merits of the alternative claim.

Notes and News

Manila Railway Co. (1906) Ltd.—Interest on the 4 per cent. "A" debenture bonds or stock due July 15 was paid on that date.

Central Argentine Results.—Gross receipts of the Central Argentine Railway for the year to June 30, 1942, amounted to 93,019,800 pesos, an increase of 6,492,150 pesos in comparison with the previous year.

Buenos Ayres Western Railway Limited.—The directors are paying on August 26 one half-year's arrears of interest to January 1, 1942, on the 4 per cent. and 5 per cent. debenture stocks, less tax. One half-year's arrears of interest to July 1, 1941, on these stocks was paid on February 25, 1942.

Scottish Machine Tool Corporation Limited.—Payment is being made of a dividend of 8 per cent. and a bonus of 2 per cent., making 10 per cent. for the year to March 31, 1942. For 1940-41 the distribution was 6 per cent. Net profit for 1941-42 is reported at £83,287 (£74,865) and the transfer to reserve for taxation is £70,000 (£57,900).

Great Southern Railways (Eire).—For the 27th week of 1942 the Great Southern Railways (Eire) report passenger receipts of £40,609 (against £49,068), and goods receipts of £59,972 (against £45,027), making a total of £100,581 (against £94,095), for the corresponding period of the previous year. The aggregate receipts to date are passenger, £912,147 (against £1,016,322), goods, £1,601,620 (against £1,345,157), making a total of £2,513,767 (against £2,361,479).

Crosville Motor Services Limited.—Traffic receipts and other revenue for the year to April 30, 1942, after taxation (including estimated provision for E.P.T.) were £1,553,133 (£1,380,395). The balance, after expenses, depreciation, etc., is £79,487 (£82,947). Ordinary dividend for the year is again 8 per cent., requiring £88,000, and the carry forward is £45,751. The company is a subsidiary of L.M.S.R., G.W.R., and Tilling & British Automobile Traction Limited jointly. During the year the business of O. Glynne Parry, of Benllech, Anglesey, was acquired.

Powell Duffryn Associated Collieries Limited.—The board has decided to recommend (i) a dividend of 2½ per cent. actual, less income tax at 10s. in the £, on the £3,500,000 4½ per cent. cumulative preference stock for the half year to June 30, 1942, payment to be made on July 31, 1942; (2) a final distribution for the year ended March 31, 1942, of £238,000 (making a total distribution for the year of £319,000) to be divided between The Powell Duffryn Steam Coal Co. Ltd. and Welsh Associated Collieries Limited in the appropriate proportions.

Powell Duffryn Steam Coal Co. Ltd.—The directors recommend payment on July 31 of final dividends for the year ended March 31, 1942, of 3 per cent. actual, less income tax at 10s. in the £, on the 6 per cent. preference shares of £5 each, and on the 6 per cent. second preference shares of £1 each; 2½ per cent. actual, less income tax at 10s. in the £, on the 5 per cent. preferred ordinary stock; 5½ per cent. actual, less income tax at 10s. in the £, on the ordinary stock (making 7 per cent. for the year). Dividends are recommended of:—2½ per cent. actual, less income tax at 10s. in the £, on the £1,250,000 5½ per cent. cumulative

preference stock for the half year to June 30, 1942; 4½ per cent. actual, less income tax at 10s. in the £, on the £1,831,457 4½ per cent. preferred ordinary stock for the year ended March 31, 1942; 1½ per cent. actual, less income tax at 10s. in the £, on the £5,078,016 ordinary stock for the year ended March 31, 1942.

George Spencer Moulton & Co. Ltd.—The profit for the year 1941 was £62,751 (£76,121), and £22,802 was brought in. Bank loan interest takes £6,500 (£6,900), taxation £41,000 (£46,500), and reserve £10,000 (same). The ordinary dividend is again 5 per cent., and £21,603 is carried forward.

Danish State Railways.—The report of the Danish State Railways for 1941-42 shows a revenue of Kr. 232,900,000 and expenditure of Kr. 181,400,000, according to a German news agency message from Copenhagen. Compared with the previous year (April, 1940, to April, 1941) receipts were about Kr. 45,900,000 and expenditure about Kr. 22,400,000 higher.

Southern San Paulo Railway Debentures.—The Southern San Paulo Railway Five per Cent. Debenture Stockholders Committee seeks powers to negotiate an agreement with the Brazilian Government and holders are asked for their support. The bonds and cash held in Brazil by the trustees as security for the debentures were sequestered by the Brazilian Government in July, 1940. The board of the company is satisfied that it will be in the interests of the debenture stockholders to lodge their certificates.

German Wagon-Building Industry.—Waggonfabrik L. Steinfurt A.G., of Königsberg, about which a note was given in our July 3 issue, returned for 1941 a gross profit (after depreciation and taxation had been allowed for) of RM.284,000, compared with RM.229,000 for 1940. As the interest service absorbed only RM.39,000, against RM.101,000 in 1940, and as there had been an extraordinary income of RM.33,000, against RM.70,000 in 1940, the company was able to allocate RM.60,000 to reserves. The net profit for 1941 amounted to RM.212,047, compared with RM.184,047 for 1940.

Icebreaker for Danish State Railways.—An icebreaker for the Danish State Railways was recently launched from a Danish yard. It is named *Holger Danske*, and is reported to be similar to the Danish Government icebreaker *Storebjørn*. It is 203½ ft. in length and 54 ft. in breadth; the draught is about 24½ ft. The propelling machinery consists of three steam engines, 2,000 h.p. each, supplied by A/S. Frichs, Aarhus, and each driving one propeller shaft. Two are installed aft and one forward. Steam is supplied by four oil-fired boilers placed amidships. The vessel is specially fitted for the carriage of passengers, there is seating accommodation for between 600 and 700.

Budapest Underground System.—It is understood that the four underground lines, the proposed construction of which was reported in our October 24, 1941, issue, at page 426, are to have a total route-length of 29 km. (18 miles). According to preliminary estimates, the first two lines to be built will involve an expenditure of 225,000,000 pengős. A yearly deficit of 10,000,000 pengős, during the first few years of operation, is expected in respect of the whole system; the deficit is to be borne mainly by the municipality, although the State may make a contribution. A sum of

1,500,000 pengős has been allotted to the preliminary geological survey of the new routes.

Stream-Line Filters Limited.—Net profits for 1941 were £22,516 (£23,127). Dividends totalling 10 per cent. were the same. Transfer to reserve was £10,000 (£13,000 to tax reserve), and the amount carried forward is £5,293 (£3,507).

A.B.C. Coupler & Engineering Co. Ltd.—Net profit for the year to September 30, 1941, was £5,767 (£4,751), and £1,317 was brought in. A sum of £3,000 is transferred to general reserve, and the dividend is 10 per cent. (same). The carry forward is £1,488.

Brazilian Road Development.—The Brazilian National Department of Highways has recently opened a part of the new Getulio Vargas Highway, which will connect the south of Brazil with the Federal Capital. The section now brought into use is approximately 100 km. (62 miles) long, and extends from Sao Leopoldo to Caxias, in Rio Grande do Sul.

Ferrocarriles Vascongados.—According to the German News Agency from Bilbao, this company returned for 1941 a net profit of 2,400,000 pesetas, of which 1,800,000 pesetas are to be distributed in dividends. The number of passengers carried was 4,500,000, or 700,000 more than in 1940, and the amount of freight conveyed was 568,000,000 kilogrammes, or 8,000,000 kilogrammes more than in 1940.

Commercial Aviation in Brazil.—Commercial aviation in Brazil grew amazingly in the period 1930 to 1940. In 1930, there were only 31 landing fields in the country; in 1940, the figure had risen to 512. In the same period the number of commercial flights increased from 1,787 to 7,900, and the number of passengers transported from 4,567 to 70,734. The distance covered in 1930 by Brazilian air lines was only 673,735 miles, while in the year 1940 it was 4,377,300 miles. There were only 27 licensed commercial pilots in 1930; in 1940 there were 160.

Swedish State Railways Results.—Total receipts of the Swedish State Railways for the first three months of 1942 show an increase of 13 per cent. over those of the corresponding period of 1941, and amount to Kr. 109,200,000. Expenditure has risen to Kr. 83,400,000, or by more than 20 per cent., compared with Kr. 69,400,000 during the same period last year. Kr. 7,400,000 has been allocated to the renewal fund (against Kr. 6,900,000). The working surplus totals Kr. 25,800,000 (against Kr. 27,200,000 a year ago). The net surplus is Kr. 15,900,000 (against Kr. 17,500,000, a reduction of about 10 per cent.); this is due to the interest service in respect of the State debt absorbing Kr. 9,900,000 (against Kr. 9,700,000).

Experimental Loud Speakers at Underground Stations.—The loud-speaker installation at Westminster Station, London Transport, has now been made automatic. The apparatus is put into operation by the arrival of a train and announces the name of the station just before the train stops. Then it calls out the destination of the train and afterwards repeats the name of the station. The various announcements are recorded on sound film, a short length of which rotates continuously, and by means of interconnection from the existing train describer, the appropriate sound track is selected to

announce the train destination. Cams are provided on the sound track equipment in order to start the announcement at the correct place, and a telephone type unselector step-by-step switch is used for timing the various announcements. Thus by simple cross connections on the bank of the switch, any arrangement of the announcements can be provided.

Trolleybuses in Spain.—The Madrid Municipal Council has approved an estimate of 8,412,475 pesetas for the acquisition of 25 trolleybuses for service in the city. An estimate of 28,213,965 has also been approved for the construction of 50 tramcars. In the near future the new lines to San Andres, in Barcelona, will be working with a service of 40 trolleybuses. Meanwhile, of the 20 motorbuses running for the Roca Company, ten have been fitted with producer-gas installations.

Edgar Allen & Co. Ltd.—Trading profit for the year to March 31, 1942, amounted to £307,510 (£329,494). Adding interest and dividends and profits of subsidiaries gives a total of £333,073 (£353,854). Deducting depreciation and directors' fees leaves £300,991 (£321,739). Allocations include £250,000 (£263,000) to income tax and E.P.T., £6,600 (£10,000) to A.R.P., and £4,500 (£4,300) for War Damage Act payments, leaving a net balance of £39,890 (£44,439). The ordinary dividend is 12½ per cent. (same) and £15,000 (£20,000) is transferred to general reserve, leaving £36,341 to be carried forward against £36,907 brought in.

Madrid Metropolitan in 1941.—The total number of passengers carried in 1941 was again a record, the figure of 220,193,364 comparing with the 1940 total of 180,939,364. Receipts of 38,601,173 pesetas compared with 31,648,784 pesetas in the previous year. With the opening of the new Sol-Arguelles lines, the total length of the company's system is now 22½ km. (14 miles). The profit and loss account showed a balance of 11,442,980 pesetas, allowing of a dividend of 3-52 per cent., a complementary dividend up to 6 per cent., and a supplementary of 3-39

per cent., with 196,580 carried forward. The report points out that the traffic density in 1941 reached the high figure of 10·2 million passengers a kilometre.

Great Western of Brazil Railway Co. Ltd.—Payment is announced for August 8 of 3 per cent. interest on the 6 per cent. permanent debenture stock and of 2 per cent. interest on the 4 per cent. debentures (both plus interest on arrears at 4 per cent. per annum) for the half-year to December 31, 1939. Similar payments on these stocks for the half-year to June 30, 1939, were made on June 2 last. Due to war conditions, the annual accounts have not yet arrived from Brazil. It will, therefore, not be possible to hold the annual general meeting before September next.

Sorocabana Railway Debentures.—Holders of the cumulative 5½ per cent. income first debentures of the Sorocabana Railway Company are asked by their advisory committee to deposit their holdings with the Bank of Scotland, 30, Bishopsgate, E.C., or branches. The pledged assets forming part of the security for the debentures were expropriated by the Brazilian Government under decree of July 22, 1940. Recent conversations with that Government, however, indicate the possibility of some suitable arrangements being reached, provided the committee is given plenipotentiary negotiating powers by a sufficiently large proportion of the debenture holders.

Chicago, Burlington & Quincy Railroad.—The total operating revenues for the year 1941 were \$117,521,355 (\$97,631,242). The increase of \$19,890,113 (20·37 per cent.) was made up as follows: Freight \$16,675,915, passenger \$1,733,053, mail \$397,921, express \$196,282, other transport revenue \$367,016, demurrage \$132,538, other incidental operating revenues \$387,388. Revenue tons carried amounted to 38,121,460 (31,014,014). Passenger revenue in 1941 totalled \$10,697,250, an increase over the previous year of \$1,733,053. Mail revenue came to \$4,703,751, an increase of 9·24 per cent., and express to \$1,770,275, an increase of 12·47 per cent. Increases in passenger and

freight rates granted by the Interstate Commerce Commission since the beginning of the present year form the subject of an Editorial Note at page 74. Based on 1941 traffic the annual freight and passenger revenue increase of the C.B. & Q.R.R. at new rates is estimated at \$5,899,000.

Contracts and Tenders

The Bengal-Nagpur Railway has ordered 8 steel tyres for a Sentinel-Cammell railcar from Taylor Bros. & Co. Ltd.

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices	
			July 17, 1942	Rise/ Fall
G.W.R.				
Cons. Ord.	43½	30½	46½	+ 2½
5% Cons. Pref.	109½	83½	107½	+ ½
5% Red. Pref. (1950) ..	105½	96½	106	—
4% Deb.	113½	102½	108	+ 1
4½% Deb.	115	105½	108½	—
4½% Deb.	121½	112	114½	—
5% Deb.	132	122	127½	—
2½% Deb.	70	62½	72½	—
5% Rt. Charge	129½	116	125½	+ 1
5% Cons. Guar.	128	110½	125	+ 1
L.M.S.R.				
Ord.	17½	11	20	+ ½
4% Pref. (1923)	53	33½	56	+ 2
4% Pref.	68½	48½	71½	+ 1½
5% Red. Pref. (1955) ..	97½	77	99½	—
4% Deb.	105½	97	104	+ 2
5% Red. Deb. (1952) ..	110½	106½	109½	+ ½
4% Guar.	100	85½	100½	+ ½
L.N.E.R.				
5% Pref. Ord.	34	24	41	+ ½
Def. Ord.	2	1½	2½	+ ½
4% First Pref.	52½	33	55	+ 1½
4% Second Pref.	19½	10	23	+ ½
5% Red. Pref. (1955) ..	79½	52	88	—
4% First Guar.	90½	74½	94	+ 1
4% Second Guar.	80½	59	84	+ ½
4% Deb.	79½	68½	79	+ 1½
4% Deb.	104	91½	103½	+ 2
5% Red. Deb. (1947) ..	106	102½	104½	—
4½% Sinking Fund Red. Deb.	103½	99½	103½	—
OUTHERN				
Pref. Ord.	65½	43½	65	+ 2½
Def. Ord.	15½	9	17	+ 1
5% Pref.	107	77½	107	+ ½
5% Red. Pref. (1964) ..	107	89½	108½	—
5% Guar. Pref.	128	111	125	+ 1½
5% Red. Guar. Pref. (1957) ..	114½	107½	111½	+ 1
4% Deb.	112	102½	107	+ ½
5% Deb.	130½	119	127½	—
4% Red. Deb. (1962-67) ..	108½	102	108½	—
4% Red. Deb. (1970-80) ..	108½	102½	107½	—
FORTH BRIDGE				
4% Deb.	99½	90½	105	- 2
4% Guar.	99	85½	103½	—
L.P.T.B.				
4½% "A"	120½	109½	112½	—
5% "A"	130½	115½	123½	—
4½% "T.F.A."	103½	99½	100	—
5% "B"	117	102	113½	+ 1
"C"	46½	28½	43½	+ 2½
MERSEY				
Ord.	24½	19½	22	—
4% Perp. Deb.	100	90	100	—
3% Perp. Deb.	73½	63	78	—
3% Perp. Pref.	58	51½	59	+ 1
IRELAND				
BELFAST & C.D.				
Ord.	4	4	9	—
G. NORTHERN				
Ord.	14½	3	20	- 2
G. SOUTHERN				
Ord.	14½	5	12½	- 5½
Pref.	17	10	17½	—
Guar.	44	16	39	—
Deb.	61	42	62	- 1½

§ ex dividend



The Fruiterers' Company's visit to Maidstone

The Fruiterers' Company, of which Mr. Grasemann (Public Relations & Advertising Officer, Southern Railway) is Master this year, recently visited Maidstone and the Research Station at Malling, where they met fruit growers, members of the National Farmers' Union, and representatives of rail and road transport, to discuss matters of mutual interest. Included in the accompanying photograph are: Mr. J. H. Turner, Chairman, Standing Joint Committee of Road Hauliers' National Organisations, Mr. G. F. French, Director & General Manager of Maidstone & District Motor Services Limited, and the following Southern Railway officers: Mr. R. M. T. Richards, Traffic Manager; Mr. H. E. O. Wheeler, Deputy Traffic Manager; Mr. C. Grasemann, Public Relations & Advertising Officer; and Mr. P. Nunn, Divisional Superintendent London (East)

Railway Stock Market

Firm conditions have ruled in most sections of the Stock Exchange, although a disposition to await the next turn in war developments had a restraining influence on the volume of business. Sentiment was assisted by the very firm undertone in British Funds, and elsewhere many securities continued in small supply; there were very few sellers because of the difficulty of obtaining alternative investments on attractive terms. Home railway prior charges have continued to come in for rather more attention on yield considerations, but in most cases movements on balance were again fractional. The junior stocks were slightly lower, and at the time of writing quieter conditions have developed in advance of the interim dividend decisions. There is increasing willingness to class home railway junior stocks as having favourable merits as a wartime holding, because of the reasonable assumption that dividend rates seem likely to be quite well maintained unless air raid damage is on an exceptionally heavy scale. Moreover, although the expansion in railway revenue will not, of course, influence the fixed rental payable to the railways, the high rate of earnings under Government control may strengthen the position of the railways in any post-war arrangements.

ments. Apart from yield considerations and the assumption that wartime dividends may be little changed, the recent improvement in railway stocks is due to the more hopeful views that have now developed as to the post-war position. Particular attention has centred this week on views as to the position and outlook of London Transport "C" stock; hopes that better dividends may be in prospect as time proceeds are based partly on the likely conversion to a lower interest basis of the £12½ millions of 4½ per cent. T.F.A. stock.

At the time of writing, Great Western ordinary stock has eased slightly to 46½, compared with 46½ a week ago. After rising to 126, Great Western guaranteed moved back to 125, which, however, compared with 124½ a week ago; the preference stock was fractionally better at 108, and the 4 per cent. debentures were also quoted at this figure, which represented a gain of a point on balance. L.M.S.R. ordinary was little changed at 20, but a good deal more attention has been given to the 4 per cent. 1923 preference stock, which has further improved from 54½ to 56. L.M.S.R. senior preference was 71, compared with 70½ a week ago, and the guaranteed stock held its recent improvement to 100½, as did the 4 per cent. debentures at 104. A fair amount of speculative attention continued to centre on L.N.E.R. second preference, which at

23 was unchanged on balance, pending the decision as to an interim dividend. L.N.E.R. first preference has further improved from 53½ to 55, but still remains below the quotation for L.M.S.R. 1923 preference and would seem to be relatively undervalued. L.N.E.R. first guaranteed held its recent improvement to 94, and the second guaranteed was again 84; the 3 per cent. and 4 per cent. debentures remained at 79 and 103½ respectively. Elsewhere, however, there was an easier tendency in Metropolitan Assented, which was quoted a point lower at 48. Southern preferred was fractionally higher at 65½, but the deferred stock has moved back from 17½ to 16½ at the time of writing. Southern preference held last week's improvement to 107, and the guaranteed stock rose further to 125. London Transport "A" and "B" maintained the higher prices made recently; the "C" stock has moved up strongly from 42 to 45½ on the views current as to the position and outlook.

Argentine and other foreign railway securities were less active, but in most cases recent gains were fairly well maintained. Central Argentine debentures have been favoured on hopes that despite the moratorium granted in October, 1940, it may be possible to make a payment on account of arrears of interest. Slightly lower quotations ruled for Canadian Pacific preference and debenture stocks.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open 1941-42	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to date			Shares or Stock	Prices				
			Total this year	Inc. or Dec. compared with 1941		Totals		Increase or Decrease		Highest 1941	Lowest 1941	July 17, 1942	Yield % (See Note)	
						This Year	Last Year							
South & Central America														
Antofagasta (Chili) & Bolivia	834	12.7.42	26,020	+ 9,260	28	£ 595,230	£ 499,280	+ 95,950	Ord. Stk.	104	3½	9	Nil	
Argentine North Eastern	723	11.7.42	ps. 223,300	+ ps. 35,400	2	ps. 323,800	ps. 323,100	+ ps. 6,700	"	4	1	4½	Nil	
Bolivar	174	June, 1942	4,368	+ 428	25	27,431	23,072	+ 4,359	6 p.c. Deb.	5	5	10	Nil	
Brazil	...	...	...	...	...	...	...	...	Bonds	8	2½	13	Nil
Buenos Ayres & Pacific	2,801	11.7.42	ps. 1,448,000	- ps. 23,000	2	ps. 2,452,000	ps. 2,667,000	- ps. 215,000	Ord. Stk.	7½	1½	5	Nil	
Buenos Ayres Great Southern	5,080	4.7.42	ps. 2,079,000	- ps. 203,000	2	ps. 1,181,000	ps. 1,606,000	- ps. 425,000	Ord. Stk.	10½	3½	8	Nil	
Buenos Ayres Western	1,930	4.7.42	ps. 1,045,000	+ ps. 153,000	2	ps. 491,000	ps. 655,000	- ps. 164,000	"	9	2½	7½	Nil	
Central Argentine	3,700	11.7.42	ps. 2,026,650	+ ps. 309,150	2	ps. 2,988,450	ps. 3,011,350	- ps. 22,900	"	8½	2½	6½	Nil	
Do.	...	...	...	...	...	...	...	...	Divd.	9½	1	4	Nil
Cent. Uruguay of M. Video	972	27.6.42	18,475	- 10,249	52	1,334,359	1,237,427	+ 96,932	Ord. Stk.	9½	1	4½	Nil	
Costa Rica	262	May, 1942	15,651	- 3,810	46	228,220	218,358	+ 9,862	Stk.	15½	11½	13	Nil	
Dorada	70	May, 1942	15,882	+ 2,982	21	63,546	62,100	+ 1,446	1 Mt. Db.	97	97	88½	6½	
Entre Rios	808	11.7.42	ps. 280,600	- ps. 14,900	2	ps. 434,000	ps. 496,000	- ps. 62,000	Ord. Stk.	6½	1	5½	Nil	
Great Western of Brazil	1,030	11.7.42	10,000	+ 3,030	20	275,800	257,900	+ 17,900	Ord. Sh.	11/-	1/-	4	Nil	
International of Cl. Amer.	794	May, 1942	\$114,834	+ \$7,783	20	\$728,750	\$552,133	+ \$176,617	"	...	...	...	...
Interoceanic of Mexico	...	...	...	...	...	...	...	...	1st Pref.	4	6d.	1	Nil
La Guaira & Caracas	223	June, 1942	5,860	+ 785	25	37,990	35,220	+ 2,770	"	4	1	4	Nil	
Leopoldina	1,918	4.7.42	33,107	+ 6,632	1	790,130	640,010	+ 150,120	Ord. Stk.	4	1	4½	Nil	
Mexican	483	7.7.42	ps. 324,800	- ps. 12,800	41	136,984	120,202	+ 16,782	"	4	1	4	Nil	
Midland of Uruguay	319	Apr., 1942	13,856	+ 1,640	41	84,628	53,710	+ 30,918	Ord. Sh.	66½	1½	3½	3½	
Nitrate	385	30.6.42	13,004	+ 6,302	25	\$6,666,000	\$6,531,000	+ \$135,000	Pr. Li. Stk.	43/-	29	42½	14½	
Paraguay Central	274	11.7.42	\$3,853,000	+ \$347,000	52	915,630	772,792	+ 142,838	Pref.	6½	1½	13	Nil	
Peruvian Corporation	1,059	June, 1942	82,182	+ 18,894	45	915,630	772,792	+ 142,838	"	52	24½	51	3½	
Salvador	100	May, 1942	c 106,000	+ c 46,000	52	e 959,172	e 743,683	+ e 215,489	"	1	6/-	1½	Nil	
San Paulo	153½	5.7.42	41,011	+ 2,761	27	956,443	1,003,307	- 46,864	Ord. Stk.	1	6/-	1½	Nil	
Taltal	160	June, 1942	5,800	+ 3,750	2	55,510	32,595	+ 22,915	Ord. Sh.	1	6/-	1½	Nil	
United of Havana	1,346	11.7.42	31,280	+ 12,470	2	52,879	33,472	+ 19,407	Ord. Stk.	2½	1	3	Nil	
Uruguay Northern	73	Apr., 1942	980	- 41	41	12,070	11,329	+ 741	"	...	...	...	...
Canada														
Canadian National	23,562	7.7.42	1,400,800	+ 317,400	27	35,283,800	29,426,400	+ 5,857,400	"	13½	7½	10	Nil	
Canadian Pacific	17,139	7.7.42	965,400	+ 158,400	27	25,172,000	20,775,000	+ 4,397,000	Ord. Stk.	13½	7½	10	Nil	
India														
Barsi Light	202	April, 1942	12,855	- 6,832	4	12,855	19,687	- 6,832	"	345	253	351½	5½	
Bengal & North Western	2,093	May, 1942	281,550	- 6,732	8	555,000	555,860	- 860	Ord. Stk.	101	95½	96	4½	
Bengal-Nagpur	3,267	10.3.42	263,175	+ 127	50	9,354,150	8,504,657	+ 849,493	"	101	95½	96	4½	
Madras & Southern Mahratta	2,939	10.5.42	214,050	+ 13,747	6	887,325	812,094	+ 75,231	"	105½	101½	99	7½	
Rohilkund & Kumaon	571	May, 1942	58,950	+ 12,488	8	119,550	140,639	- 21,089	"	342	290	349½	4½	
South Indian	2,402	30.4.42	154,715	+ 12,687	4	487,682	419,844	+ 67,838	"	100	87	95	3½	
Various														
Beira	204	May, 1942	66,600	- 4,257	9	600,715	38,668	+ 26,030	Prf. Sh.	1½	29/-	2½	Nil	
Egyptian Delta	607	31.5.42	11,000	+ 4,257	9	64,698	...	...	B. Deb.	68	45	37½	9½
Manila	...	...	...	...	...	...	...	...	Inc. Deb.	90½	86½	89½	6
Midland of W. Australia	277	May, 1942	26,845	+ 9,254	41	229,956	167,924	+ 62,032	"	...	...	...	...
Nigerian	1,900	25.4.42	51,498	+ 137	4	191,234	240,666	- 49,432	"	...	...	...	...
Rhodesia	2,442	May, 1942	435,574	- 3,707	35	3,817,971	...	...	"	...	...	...	...
South Africa	13,291	6.6.42	728,222	+ 3,707	10	7,268,183	6,913,292	+ 354,891	"	...	...	...	...
Victoria	4,774	Feb., 1942	1,147,636	+ 276,753	33	9,086,172	7,418,222	+ 1,677,950	"	...	...	...	...

Note. Yields are based on the approximate current prices and are within a fraction of ½%. Argentine traffic is given in pesos. * Aggregate receipts are those for the four days from June 30. † Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend.